

1 UNITED STATES DISTRICT COURT
2 EASTERN DISTRICT OF NEW YORK

3

4 ROBERT A. FALISE, LOUIS
KLEIN, JR., FRANK MACCHIAROLA,
5 CHRISTIAN E. MARKEY, JR.,
as TRUSTEES
6 Plaintiffs,

7 VERSUS CV 99-7392 (JBW)
WEINSTEIN, J.
8 GOLD, M.J.

THE AMERICAN TOBACCO
9 COMPANY; R.J. REYNOLDS
TOBACCO COMPANY; B.A.T.
10 INDUSTRIES, PLC; BROWN &
WILLIAMSON TOBACCO
11 CORPORATION; PHILIP MORRIS
INCORPORATED; LIGGETT GROUP,
12 INC.; LORILLARD TOBACCO
COMPANY,
13 Defendants.

14

15 Videotaped deposition of ARNOLD R. BRODY,
Ph.D., 170 Walnut Street, New Orleans,
16 Louisiana 70118, taken in the offices of
Gordon, Arata, McCollam, Duplantis & Eagan,
17 Suite 4000, 201 St. Charles Avenue, New
Orleans, Louisiana 70170, on Tuesday, the
18 16th day of May, 2000, beginning at 9:35 a.m.

19

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24 REPORTED BY:

25 CAROL E. VALLETTE, CCR,
Registered Professional Reporter

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10	EXHIBITS:	PAGE
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12	Document entitled "Notice of Videotaped Deposition"	
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14	Articles entitled "Preferential Formation of Benzo[a]pyrene Adducts at Lung Cancer Mutational Hotspots in P53"; "Benzo[a]pyrene-induced murine skin tumors exhibit frequent and characteristic G to T mutations in the p53 gene"; "p53: at the crossroads of molecular carcinogenesis and risk assessment"; "Mutations in the p53 Gene in Lung Cancer Are Associated with Cigarette Smoking and Asbestos Exposure"; "Proliferative Potential and p53 Overexpression in Precursor and Early Stage Lesions of Bronchioloalveolar Lung Carcinoma"	
22	Defendants' Exhibit 3.....	17
23	Document entitled "Expert Witness Statement Arnold R. Brody, Ph.D."	
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25		

1

2 S T I P U L A T I O N

3

4 IT IS STIPULATED AND AGREED by and
5 between counsel for the parties hereto that
6 the deposition of the aforementioned witness

7 is hereby being taken under the Federal
8 Rules of Civil Procedure, for all purposes,
9 in accordance with law;

10 That the formalities of reading and
11 signing are specifically not waived;

12 That the formalities of sealing,
13 certification and filing are specifically
14 waived;

15 That all objections, save those as to
16 the form of the question and the
17 responsiveness of the answer, are hereby
18 reserved until such time as this deposition,
19 or any part thereof, may be used or sought
20 to be used in evidence.

21 * * * *

22 CAROL E. VALLETTE, CCR, Registered
23 Professional Reporter, in and for the Parish
24 of Orleans, State of Louisiana, officiated
25 in administering the oath to the witness.

1 THE VIDEOGRAPHER:

2 This is the videotaped
3 deposition of Arnold Brody, Ph.D.,
4 taken in the matter of Robert Falise,
5 Et Al v. The American Tobacco
6 Company, Et Al, taken for the United
7 States District Court, Eastern
8 District of New York. This

9 deposition is being held today at 201
10 St. Charles Avenue, on the 40th
11 Floor, in New Orleans, Louisiana, on
12 May 16th, 2000, at 9:39 a.m.

13 My name is Gilley DeLorimier.

14 I am with Depo-Vue. The court
15 reporter today is Carol Vallette,
16 with Huffman & Robinson.

17 Would Counsel present, please,
18 now introduce themselves and whom
19 they represent?

20 MR. WESTBROOK:

21 I'm Edward Westbrook from the
22 Ness, Motley law firm, representing
23 the plaintiffs.

24 MR. DUNCAN:

25 My name is Tom Duncan. I

6

1 represent Philip Morris and
2 Lorillard, and I'm for defendants.

3 MR. THOMPSON:

4 My name is Brent Thompson. I
5 represent R.J. Reynolds. I'm from
6 Womble, Carlisle.

7 MR. MOLSTER:

8 Charles Molster, from Winston
9 & Strawn, on behalf of Philip
10 Morris.

11 THE VIDEOGRAPHER:

12 Would the court reporter,
13 please, now swear in the witness?
14 ARNOLD R. BRODY, Ph.D.,
15 after being first duly sworn in the cause by
16 the court reporter, testified as follows:
17 EXAMINATION BY MR. DUNCAN:
18 Q. Good morning, Dr. Brody.
19 A. Morning.
20 Q. We've previously been
21 introduced. I'm Thomas Duncan. And, I
22 guess, just a couple of things to go over
23 before we get started on the substance. I
24 know you've had your deposition taken a
25 number of times. Just if we could do sort

7

1 of the following, if you would wait for me
2 to finish asking a question before you
3 answer, that would be great, easier for the
4 reporter to follow it, and, likewise, I'll
5 do my best to wait till you've given your
6 answer before I ask you another question.
7 Doctor, I notice you're wearing
8 a pager. Is there any reason that you might
9 be called away from this deposition?
10 A. No. In fact, I'm going to turn
11 it off. Thank you for reminding me. This
12 is just so my secretary can keep track of
13 me.

14 Q. Okay. And do you have any
15 questions about the deposition format? Are
16 you familiar with it?

17 A. If it's like the others I've
18 been in, it shouldn't be a problem.

19 Q. Fine. First thing I'd like to
20 ask you --

21 MR. DUNCAN:

22 If I could get this marked,
23 Notice of Videotaped Deposition.

24 (Whereupon, Defendants'
25 Exhibit 1 was marked for

8

1 identification.)

2 EXAMINATION BY MR. DUNCAN:

3 Q. Do you have a copy of your
4 Notice of Deposition?

5 A. I don't.

6 MR. WESTBROOK:

7 That's the one we looked at
8 yesterday.

9 MR. DUNCAN:

10 Okay. Perhaps, if you could
11 let him look at your copy --

12 MR. WESTBROOK:

13 Sure.

14 MR. DUNCAN:

15 -- and I could ask him
16 questions about it.

17 EXAMINATION BY MR. DUNCAN:

18 Q. Have you seen this?

19 A. Yesterday, I saw it.

20 Q. Okay. And let me ask you to

21 turn to Page 3, which is Schedule A of

22 that. And have you seen that before?

23 A. Yes.

24 Q. Okay. And let's look at Number

25 1 there: "Deponent's complete file on the

9

1 Falise v. American Tobacco Company, Et Al

2 case." Do you have a file, Doctor?

3 A. Only a few papers that I pulled

4 together, and that's essentially it.

5 Q. Now, when you say a few papers

6 that you've pulled together, what are you

7 referring to?

8 A. I'm referring to the papers that

9 Mr. Westbrook handed to you, my report.

10 That's really all I have.

11 Q. Okay. What I'd like to do is go

12 ahead and get these papers marked for

13 attachment to the deposition. Now, as I

14 understand it, have these papers been listed

15 in your reliance materials --

16 A. No.

17 Q. -- before the expert report?

18 A. No.

19 Q. Okay. And is there a reason
20 that they have not been?
21 A. At the time I was putting
22 together the report, I hadn't talked with
23 enough detail to Mr. Westbrook, and we
24 talked about some other things that he
25 thought I should be considering and some

10

1 other things that I thought I should think
2 about, and that's what's constituted in
3 these papers.

4 Q. Okay. And when did you have
5 that conversation with Mr. Westbrook?

6 A. Probably a couple of weeks ago
7 the first time, and then yesterday again.

8 Q. And when did you pull these
9 papers together?

10 A. Yesterday.

11 Q. Okay. And I guess this is the
12 first time that we've gotten notice that
13 there are additional materials?

14 MR. WESTBROOK:

15 That -- you're correct.

16 MR. DUNCAN:

17 Okay.

18 EXAMINATION BY MR. DUNCAN:

19 Q. And I guess we'll talk about
20 that impact, whether or not that has an
21 impact on your expert report in a minute.

22 So, the file that you have
23 consists only of those papers?
24 A. That's correct. I have another
25 copy of my CV if somebody needs it.

11

1 Q. Okay. Well, I'll -- we'll get
2 to that in a moment and see if we have the
3 most current version, and if we don't, well,
4 we'd certainly like that.

5 A. Sure.

6 Q. As part of your file, do you
7 have any administrative correspondence from
8 plaintiffs' counsel in this case?

9 A. No. No.

10 Q. Any billing records?

11 A. No.

12 Q. Okay. And no personal notes or
13 anything that you've taken?

14 A. Correct.

15 Q. All right. Let's look at
16 Number 2 there: "All documents or materials
17 that the Deponent has received from or been
18 shown by plaintiffs' counsel in this case."
19 Do you have any such documents that are
20 responsive to Number 2 other than what
21 you've already provided me?

22 A. Well, I received documents from
23 plaintiffs' counsel, but I didn't do

24 anything with it. In other words, I didn't
25 open them, so, I have nothing that --

12

1 Q. What did you receive?

2 A. Well, I received docs -- box --
3 I'm sorry -- boxes of documents, and I just
4 felt they were just overwhelming and wasn't
5 going to be able to deal with them, so, I
6 left them aside.

7 Q. What kind of documents?

8 A. I'm not really sure. Maybe Mr.
9 Westbrook knows. I'm not really sure.

10 Q. Well, did -- are these documents
11 that -- I take it you didn't ask for these
12 documents?

13 A. I did not. That's correct.

14 Q. Okay. And did you even go
15 through them at all?

16 A. I did not go through them. I
17 opened one box, and I saw them and I said,
18 I'm not going to do this.

19 Q. Were you told you were being
20 sent documents?

21 A. Maybe. Some. Some things were
22 coming, but I --

23 Q. Were you told what the purpose
24 of these documents were or what the reason
25 you were getting them?

1 A. Not really.

2 Q. Okay. So, I take it that
3 although you have them, you're not going to
4 rely on them or use them at trial of this
5 case?

6 A. That is correct.

7 Q. Okay. Let's look at Number 3:
8 "All documents or materials that the
9 Deponent has given or shown to plaintiffs'
10 counsel in this case." Likewise, do you
11 have any materials that you shared with
12 plaintiffs' counsel, sent to them, whether
13 it's correspondence, articles, anything?

14 A. No, sir, not -- not other than
15 my report.

16 Q. All right. And let's look at
17 Number 4: All documents and materials in
18 your possession that were authored by or
19 sent to any tobacco company, Tobacco
20 Institute, Council for Tobacco Research or
21 their counsel. I take it you have nothing
22 like that?

23 A. I have nothing like that, no,
24 sir.

25 Q. All right.

1 MR. WESTBROOK:
2 Just to clarify, some of those
3 things are in the box that he didn't
4 look at.
5 MR. DUNCAN:
6 Actually, no, I was talking
7 about materials that were sent to
8 those companies.
9 MR. WESTBROOK:
10 Oh, by him?
11 MR. DUNCAN:
12 Right.
13 MR. WESTBROOK:
14 Oh, okay. I'm sorry. I
15 misunderstood. I thought --
16 MR. DUNCAN:
17 Well, authored by the tobacco
18 company, or sent, but, thank you.
19 But, I take it, he's not going to
20 rely on any industry documents, so,
21 we're fine.
22 MR. WESTBROOK:
23 Right.
24 EXAMINATION BY MR. DUNCAN:
25 Q. And all -- Number 5: All

1 documents or materials that relate to or
2 concern your proposed testimony in this

3 case. Have we got all of that?

4 A. I do, yes, sir.

5 Q. Okay. Now, Counsel mentioned to

6 me before we started that there were some

7 additional slides that were present. Do you

8 have copies of those slides here today?

9 A. I have -- I have my original

10 teaching slides, some of which I would use.

11 I mean, I don't know just what I'm going to

12 be asked to do, but I have a series of

13 slides that I can show you, and I'm not

14 going to use any more than what I have, I

15 may not use all that I have, but I have them

16 in my possession. They're sitting over

17 there in that box.

18 Q. What kind of slides are they?

19 A. These are projection slides.

20 They are teaching slides that I use when I

21 give lectures, that I've used in the past in

22 the medical school, that I use when I

23 lecture around the world.

24 Q. Thirty-five-millimeter slides?

25 A. Correct.

16

1 Q. Okay. And do you have copies of

2 those?

3 A. I do not at this point. I can

4 certainly get them.

5 MR. DUNCAN:

6 We'd certainly like to get
7 copies of those.

8 MR. WESTBROOK:

9 Sure. I understand. We
10 brought the projector, if you want to
11 look at them today, if you want to
12 have copies of all of them or just
13 select some and we'll have them
14 professionally copied.

15 MR. DUNCAN:

16 That's fine. I don't imagine
17 we'll be using that in the course of
18 the deposition right now, but we can
19 certainly discuss that.

20 EXAMINATION BY MR. DUNCAN:

21 Q. Doctor, is there anything else
22 on -- that would be responsive to Schedule A
23 that I haven't covered that you think we'd
24 need to know about based on the questions
25 there?

17

1 A. I don't think so.

2 Q. Okay.

3 MR. DUNCAN:

4 All right. If we could,
5 please mark Dr. Brody's statement
6 here as Defense Exhibit next in line,
7 whatever that happens to be after

8 the -- we can go ahead and get a
9 number to it so we can refer to it.
10 Let's go ahead and mark those and
11 then we'll mark the -- why don't we
12 go off the record for that.

13 THE WITNESS:

14 As one exhibit or separate
15 exhibits?

16 MR. DUNCAN:

17 We can mark that as one
18 exhibit.

19 THE VIDEOGRAPHER:

20 Off the record, 9:48.

21 (Whereupon, a discussion was
22 held off the record.)

23 (Whereupon, Defendants'
24 Exhibit 2 and Defendants' Exhibit 3
25 were marked for identification.)

18

1 THE VIDEOGRAPHER:

2 Now returning to record. It's
3 9:49.

4 EXAMINATION BY MR. DUNCAN:

5 Q. Dr. Brody, before we start with
6 your expert report, let me -- let me go to
7 your CV, which is attached, and if you would
8 take a look at your expert report -- by the
9 way, if you wouldn't mind taking a copy of

10 the expert report that's been marked -- do
11 you have that?

12 A. I have a copy of the expert
13 report.

14 Q. Why don't you take a look at it
15 and that's in Defense Exhibit 3. If you
16 wouldn't mind taking a look at that and tell
17 me if it's identical to the one that you're
18 following so we can make sure of that.

19 A. Looks like it is, yes, sir.

20 Q. Okay. And, if you would, then,
21 with the exhibit there, if you would turn,
22 please, to the CV on the back, and let me
23 ask you, is that information, referring,
24 obviously, to your name, address, date and
25 place of birth, citizenship, marital status

19

1 and education, is all of that correct?

2 A. Yes.

3 Q. And is this the most current
4 copy of your CV?

5 A. No. It's very close. I brought
6 a more current one that has a few more
7 things in it. You're welcome to look at it.

8 Q. Okay. At some point, I'd like
9 to get ahead and get that and mark it and
10 attach it. What is different about it?

11 A. It has a few more papers that
12 we've submitted for publication. It has

13 some of my obligations that I've -- some of
14 which I've already done in the year 2000,
15 and others that are coming up.

16 Q. Okay. But as far as -- all the
17 past information is correct?

18 A. Yes.

19 Q. It's just you've added to it to
20 make it more current?

21 A. That's correct.

22 Q. Okay. If we could, then, let us
23 switch to the expert report. I'd like to
24 ask you a couple of questions about that
25 expert report, and forgive me if we jump

20

1 back and forth, but at least I'd like to
2 start with this and ask some preliminary
3 questions.

4 Doctor, who drafted this report?

5 A. I did.

6 Q. Okay. And when did you write
7 it?

8 A. Must be somewhere around six
9 months ago.

10 Q. Okay.

11 A. Six months to a year. I'm not
12 really sure.

13 Q. Okay. And perhaps this would be
14 a good time for me to ask: How did you

15 become involved in this particular case?

16 A. I received a telephone call from

17 Mr. Steve -- Stephen Kazan of the Kazan,

18 McLain firm in Oakland, California.

19 Q. Okay. And what were you asked

20 to do?

21 A. I was asked to present testimony

22 concerning function of the lung and how it

23 responds to injury by asbestos and cigarette

24 smoke.

25 Q. Okay. Had you worked with this

21

1 law firm before?

2 A. Yes.

3 Q. Had you ever worked in the area

4 of cigarette smoking and -- just cigarette

5 smoking and disease?

6 A. With the law firm?

7 Q. Yeah.

8 A. I'm sorry.

9 No, I've not. I've not

10 actually -- I've not testified or done work

11 previously other than a single case recently

12 and related to tobacco.

13 Q. Okay. Had you worked with the

14 firm who called you before --

15 A. Yes.

16 Q. -- in other matters? And what

17 did you work with them on?

18 A. Asbestos personal injury
19 testimony.
20 Q. Okay. I'm going to ask you just
21 a few things quickly then about your
22 previous testimony.
23 You've testified quite a bit in
24 the past, haven't you?
25 A. I have, yes, sir.

22

1 Q. Okay. Let's go back, if you
2 can. Let's say, over the last ten years,
3 about how many times have you testified?
4 A. Well, we'd have to sort of
5 figure it out because in 1989, I was
6 involved in one case, and '90, probably
7 another couple of cases, and it went that
8 way, a couple of cases a year, to '92, '93,
9 and then by '95, I was probably doing maybe
10 one case a month. Averaged out around one
11 case a month. So, since '95, I've been
12 doing a case a month. So, that would be 12
13 to 24. Could be as many as two cases a
14 month. And then I would have a case with --
15 I would have three cases in one month and
16 none in another month. So, it averaged out
17 to about one a month for the last five years
18 or so. So, we could figure that out, you
19 know, five times 12 or five times 20.

20 Probably several hundred times over the
21 years, I've testified.

22 Q. And what kind of cases have
23 those been primarily?

24 A. They've all been asbestos cases
25 of different sorts. We can talk about that

23

1 if you'd like.

2 Q. Sure. What kind of cases?

3 A. Okay. So, the majority have
4 been plaintiffs -- for the plaintiff, where
5 I give testimony related to a specific
6 disease process, asbestosis, lung cancer,
7 mesothelioma, pleural disease. That's
8 probably 90 percent of the cases. Ten
9 percent of the cases, I testified for
10 asbestos manufacturers who were trying to
11 recover insurance costs or bankruptcy costs,
12 whatever the case might be, where they
13 needed my testimony, again, to describe the
14 fundamental mechanisms through which
15 asbestos injures the lung.

16 Q. Okay. Would you -- so,
17 primarily, it's been individual cases?

18 A. Well, there could be groups. I
19 mean, they could be individual plaintiffs or
20 they could be class actions or they could be
21 groups of cases.

22 Q. Okay. And were you ever asked

23 to take a look -- when you testified in an
24 individual case, were you ever asked to take
25 a look at the individual who was the

24

1 plaintiff? In other words, to look at any
2 of the records or exposures or anything like
3 that?

4 A. I have done that, yes. That's
5 not typical, but I have done that.

6 Q. And why would you do that?

7 A. If the -- if there was an issue
8 of consulting in relation to what I saw on
9 the tissue, in other words, my experience --
10 while I'm not a diagnosing physician, my
11 experience over the years has allowed me to
12 develop expertise in understanding what's in
13 the tissues, what the asbestos fibers look
14 like in the tissues and, so, I've been asked
15 to do that from time to time. Plus, if I
16 could just add, when -- it's helpful for me
17 to know what the pathologist has diagnosed
18 through the medical record and what the
19 pathologist report says, and then I can more
20 easily focus in on what the issue is with
21 this particular plaintiff.

22 Q. In a perfect world, if you
23 could, would you like as much information as
24 possible on the plaintiff before you

25 testified about that plaintiff?

25

1 A. Well, it really depends on the
2 case. I mean, for the kind of testimony
3 that I typically give in court, I don't need
4 to know the person's medical record. I need
5 to know what the diagnosis is that's been
6 rendered by the M.D. pathologist, but I
7 don't need to know that. If I -- if I am
8 offered that and I have it, that's fine, but
9 I don't need to know it.

10 Q. Do you need to know what type of
11 asbestos the person was exposed to?

12 A. No, not necessarily. It depends
13 on the questions I'm asked. I mean, if I'm
14 going to talk about different asbestos
15 fibers, then, yes, it might help to know
16 that. If the person has no asbestos in
17 their lungs 40 years later and I know
18 they've been exposed to chrysotile, that can
19 explain it, versus some other asbestos. So,
20 it could, but, again, it's not necessary for
21 my testimony to know just what the fiber
22 types are.

23 Q. Do you need to know whether they
24 were exposed to asbestos?

25 A. Well, I'm asked to draw

1 assumptions in that regard. In other words,
2 I'm not going to offer my own testimony
3 whether or not a person was exposed. So,
4 I'm going to be asked to assume that there
5 is an asbestos-related disease here, and
6 that's what my testimony is based upon.

7 Q. Well, let me see if I understand
8 correctly then. You have two types of cases
9 that you would testify in, one where you're
10 just going to testify in general about
11 asbestos-related diseases, and I'm talking
12 about in the past, or, two, specifically
13 referring to an individual's disease?

14 A. Both of those have happened,
15 yes, sir.

16 Q. Okay. So, for instance --
17 excuse me -- for instance, you might talk
18 about an individual's lung burden or fibers
19 found based on a pathology report or fiber
20 burden analysis that was done; is that
21 correct?

22 A. That's correct, I could do that.

23 Q. All right. Have you done that
24 in the past?

25 A. I have, yes, sir.

1 Q. Okay. And then you might also
2 be asked, for instance, then, if I
3 understand you correctly, to talk about a
4 person as a hypothetical, that is, asked to
5 assume a number of variables?

6 A. That's right.

7 Q. Okay. And I'm asking you, do
8 you do a third thing, do you also have
9 independent information as to a particular
10 plaintiff, for instance, records that
11 indicate asbestos exposure and so forth,
12 that you would testify to, without being
13 asked to assume it?

14 A. That's not -- that's very
15 unusual. I can't say that hasn't happened
16 in the past. I mean, I may have been sent a
17 record showing this person's exposure
18 history in a plant or something and I may
19 have considered that in my testimony, so, I
20 can't say that, no, I don't do that. I may
21 have, but that would not be typical to what
22 I do.

23 Q. Okay. And do you ever ask for
24 that information to verify it for yourself?

25 A. I ask to the point where I'm

1 depending upon the plaintiffs' firm that is
2 gathering this information and, I assume,
3 has to prove that in court. So, I'm asking

4 that at that level, but I'm not asking for
5 the proof myself --

6 Q. Okay.

7 A. -- or the evidence myself.

8 Q. Okay. Over the last ten years
9 or so, do you have any idea approximately
10 how much money you've earned testifying for
11 plaintiffs in asbestos cases?

12 A. Well, again, it's going to be
13 tremendously variable. I mean, it's -- over
14 the first few years, it may have been a
15 couple thousand dollars a year. In the last
16 couple of years, it's been something over
17 50, \$75,000 a year for the last five years.
18 So, you know, several hundred thousand
19 dollars, I'm sure.

20 Q. Okay. And do you take that
21 money as personal income or do you give it
22 back to the institution, or how's that work?

23 A. No, that's our family -- part of
24 our family income.

25 Q. All right. Which law firms have

1 you worked with primarily?

2 A. Primarily, it's the Ness, Motley
3 firm, the Baron & Budd firm in Dallas, the
4 Brayton law firm in San Francisco. Those
5 are certainly the three -- of those three,

6 that's probably 90 percent of the work that
7 I do -- the consulting that I do, and there
8 are a number of other smaller firms. I
9 mean, the Kazan firm, I do maybe a case a
10 year; the Warthnick firm, maybe one or two
11 cases a year; Greitzer, Locks, maybe a case;
12 the Angelos firm, maybe one or two cases a
13 year.

14 Q. Okay. Tell me how typically you
15 get notified of a case and what you do to
16 prepare for it. And let's just take in the
17 case of an individual who is suing for
18 asbestos-related injury --

19 A. Uh-huh.

20 Q. -- what -- do you just get a
21 phone call from the firm saying, Dr. Brody,
22 we have another asbestos case for you, we
23 need your standard presentation, or how does
24 that work?

25 A. A phone call or a letter to that

30

1 effect, asking my availability.

2 Q. And is it fair to say that you
3 have a standard presentation that you give
4 in these cases?

5 A. Well, fairly much. I mean, it
6 really depends on what the diagnosis is. My
7 testimony will vary depending on the
8 diagnosis.

9 Q. Of course. And what things do
10 you feel in the past that you've been
11 comfortable testifying about in regard to
12 asbestos specifically?

13 A. Well, what I do is I explain to
14 the jury what the normal structure of the
15 lung looks like as you can see it with the
16 naked eye as well as what you can see with
17 an electron microscope. So, I do that.
18 Then, I describe what asbestos is, what it
19 looks like, and where it goes in the lung.
20 Then, I describe how the asbestos interacts
21 with the cells that I've just shown to the
22 jury in the lung, and how asbestos injures
23 those cells and causes the diseases
24 asbestosis, lung cancer, pleural scarring
25 and mesothelioma.

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1 Q. Okay. Do you ever testify in
2 one of those cases that not only is this the
3 mechanism by which injury can occur, do you
4 ever testify that in a particular plaintiff
5 asbestos is the cause of the injury in that
6 plaintiff? In other words, do you say, in
7 the case of the plaintiff here, I am
8 testifying to a reasonable degree of medical
9 certainty that Exposure X resulted in
10 Disease Y in that plaintiff?

11 A. I have done that, yes, sir.

12 Q. Okay. And, tell me, what is

13 your method for doing that? How do you make

14 that determination that asbestos caused that

15 disease in that individual? What would you

16 need in order to make that determination?

17 A. Right. I would need to know the

18 exposure history of the person, and I would

19 need to know the pathologist's diagnosis,

20 what the description of the tissue is. And

21 with that, I can -- this is -- I guess we're

22 talking about what you say is cause. And,

23 so, I can offer an opinion in that regard.

24 Q. Okay. Is that a rare case, when

25 you make that determination?

32

1 A. I don't know if it's rare. It's

2 certainly not -- I would say not typical.

3 It's a small -- it's a small percentage of

4 the cases that I do.

5 Q. You mentioned that you would

6 want a diagnosis and a pathologist's

7 determination. Are you comfortable making a

8 diagnosis of asbestos as the cause of a

9 particular disease in an individual, whether

10 that's mesothelioma, lung cancer, asbestosis

11 or benign pleural processes? Are you

12 comfortable in making that determination of

13 cause without a lung burden analysis or

14 fiber burden analysis or other pathologic
15 information?
16 A. Without the pathology, without
17 my understanding what is going on in this
18 person's lung, I don't believe I could -- I
19 could -- I don't think I would be
20 comfortable describing a cause. I mean, I
21 can still -- I can go through the iterations
22 of what asbestos does to the lung, but
23 then --
24 Q. Of course.
25 A. -- to go to the next step, as

33

1 you're asking me on this particular
2 individual, I would need to know what's
3 going on in that person's lung.
4 Q. Okay. And in the cases --
5 excuse me -- in the cases where you've so
6 testified that asbestos caused the injury in
7 that person, have you, in fact, had the
8 relevant pathology or pathologic diagnosis?
9 A. Well, I think so. I mean, in
10 most cases, if not every case, I would say
11 probably. You'd have to go back and look at
12 the individual cases, I guess, to know.
13 Q. Well, tell me what kind of
14 information you would like to have. You
15 mentioned the doctor's diagnosis. Tell me

16 what else you'd like to have in a perfect
17 world where you're asked to ascribe etiology
18 to the disease. Tell me what you'd like to
19 have.

20 A. The best thing to have is the
21 pathologist's description of the tissue.
22 That is, is there scarring, where is the
23 scarring; is there a tumor, where is the
24 tumor; is there emphysema; is there
25 bronchitis; is there -- is there a process

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1 going on that helps us understand what has
2 happened in this person's lung. That's --
3 that's the mainstay of having us understand
4 what's going on in the disease.

5 Q. Let me take a small side trip
6 then and ask about -- you said the
7 physician's diagnosis of the pathology. Do
8 you consider yourself to be a pathologist?

9 A. I'm an experimentalist.
10 Pathology is the study of disease. So, I'm
11 an experimental pathologist. I am not -- I
12 would not say I'm a pathologist, I wouldn't
13 say that, because that signifies an M.D.

14 Q. Okay. But is it safe to say
15 that you look at the same things that a M.D.
16 pathologist would look at every day?

17 A. I do, yes, sir.

18 Q. Especially as regards the lung?

19 A. I do.

20 Q. Okay. So, in the case I just
21 asked you, would -- you mentioned that it
22 was important to have the physician's
23 diagnosis. Would you -- before you made an
24 etiology determination, would you like to be
25 able to look at the same tissue that the

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1 pathologist did under the same conditions,
2 light microscopy or whatever, to make your
3 determination, or is it enough that someone
4 else said that they saw certain changes?

5 A. It really depends on the
6 situation. I mean, if I'm -- if we're
7 talking about going into court and an
8 eminent pathologist, an M.D. pathologist
9 with a lot of experience in diagnosing
10 asbestos disease has rendered an opinion
11 such as we were just talking about, I don't
12 feel that I need to go and look at the
13 tissue myself. Now, if it's another kind of
14 a setting, where if it's, for example, a
15 grand rounds in the department where we're
16 going to be looking at lung tissue and one
17 of the staff pathologists is going to talk
18 about a case, he may very well give me the
19 tissue to look at so we can have a full,
20 informed discussion about it. So, I mean,

21 it really depends on the situation.
22 Q. You mentioned grand rounds. Can
23 you describe that for me?
24 A. Well, grand rounds is the term
25 for a departmental or interdepartmental

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1 conference where, typically, cases are
2 presented and the background of the case is
3 presented for -- for discussion, and then
4 there's usually further discussion about the
5 literature and where the diagnosis comes
6 from and what the basis is for what we know
7 about the disease process.

8 Q. Okay. This is not the same kind
9 of rounds where you're standing at the
10 patient's bed, looking at a chart?

11 A. That's correct.

12 Q. Okay. So, this is more of a
13 meeting where you discuss diagnoses that
14 have occurred over the last quarter or so?

15 A. Could be within the last couple
16 of days, could be within the last month or
17 six months.

18 Q. Okay. And what is your role in
19 grand rounds?

20 A. Well, I have -- I presented
21 cases myself. I've been a guest at the
22 Harvard School of Public Health to present
23 grand rounds on the basis of to have the

24 people who have attended understand what
25 asbestos disease is all about. So, it may

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1 be a very fundamental discussion, may be a
2 case presentation. I mean, I'm not going to
3 bring in a case for diagnosis. I'm going to
4 present -- if I'm presenting material, it's
5 going to be more of the basic science
6 related to a specific disease process. If
7 I'm sitting there in the audience and
8 listening to case presentation, I may very
9 well add my two cents about what I think is
10 going on.

11 Q. So, would it be fair to say it's
12 a lot like a symposium, then, grand rounds?

13 A. Well, it's a symposium, but it's
14 specifically related to the background that
15 I just gave you.

16 Q. Okay. So, rather than talking
17 about a patient, if I understand you
18 correctly, you'd be talking about -- for
19 instance, when you go to Harvard School of
20 Public Health, you would be talking about
21 asbestos and its relationship to fibrotic
22 disease and so forth?

23 A. For example, yes, sir.

24 Q. Okay. Now, you -- you teach
25 medical students?

1 A. I do, yes, sir.

2 Q. How many courses do you teach
3 them?

4 A. I participate in the -- in the
5 sophomore medical class. So, in other
6 words, the Pathology Department is
7 responsible for the course in the second
8 year of the medical school. That's the
9 sophomore year. And there is a year-long
10 series of lectures that is given by
11 different members of the department. So, I
12 present two separate lectures in that
13 course. That's one course that I
14 participate in.

15 The second is I have a course of
16 my own which is in the School of Public
17 Health. Since I'm a professor in the
18 Department of Environmental Health Sciences
19 as well as Pathology, I have a course in --
20 it's called Environmental Toxicology, and I
21 offer that in the spring semester.

22 Q. What do you teach in
23 Environmental Toxicology? What are your
24 sub-subject areas?

25 A. We cover -- well, the main

1 purpose of this course is to have -- it
2 meets once a week. It's for graduate
3 students. It's to have the graduate
4 students understand how to use the
5 biomedical literature in making decisions
6 about things that may be controversial in
7 their field. So, we talk about such things
8 as dioxin in the environment, such things as
9 electromagnetic fields. We talk about
10 asbestos. We talk about lead, arsenic,
11 things that are in the environment that a
12 body of literature might say is dangerous in
13 this situation and others say you don't have
14 to worry about it. So, these students need
15 to understand how to use the literature,
16 whether you rely on somebody's editorial or
17 some peer-reviewed paper to draw your
18 decisions. And that's what this course is
19 all about.

20 Q. Doctor, do you consider yourself
21 to be a toxicologist?

22 A. I'm not a toxicologist, I'm not
23 a card-carrying toxicologist, but I know
24 what toxicology is.

25 Q. And, then, I guess, the point is

1 you know more about it than they do. And

2 how do you approach it?

3 A. "They" being the students? I'm

4 sorry.

5 Q. "They" being the students.

6 A. Sure. I'm not teaching

7 toxicology here. I'm -- I mean, my

8 experience -- through my experience over the

9 years, I've learned how to use the

10 literature, and not everyone understands

11 that, and you have to know how to -- how to

12 evaluate the impact of a particular writing,

13 how meaningful is it in the context of so

14 many different things that have been written

15 on a given subject.

16 Q. And let's go over a couple of

17 the subject areas or toxins that you talk to

18 them about. For instance, dioxin, what do

19 you tell them about -- the students -- about

20 dioxin?

21 A. Well, this is not a didactic

22 situation. So, I don't stand up there and

23 lecture on dioxin. What I do is I ask the

24 students to -- in one of the sessions -- we

25 divide up into groups. In one of the

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1 sessions, I ask them to go to the literature

2 on this particular topic of dioxins and

3 define for the rest of the class what the

4 controversies are. So, they'll come back

5 with that, with that literature, and we'll
6 go through the literature and I'll point out
7 what this -- why this particular source of
8 literature isn't -- doesn't have the impact
9 of another one. I mean, if it's written by
10 an editorial from a -- you know, the CEO of
11 a manufacturer, that's, I think, going to
12 have a different view than somebody who's
13 writing a peer-reviewed article in
14 epidemiology from some recognized school of
15 public health. So, they need to understand
16 that. The next session, they'll come back
17 and describe to us what their views are on a
18 particular topic. I mean, does dioxin cause
19 cancer in human populations? Some people
20 say it's a carcinogen, and others say -- say
21 not. So, I mean, where -- where does the
22 literature come down on that and what do
23 these students think about it. I mean,
24 they're not graded on where they end up in
25 their opinions. They're graded on how they

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1 present the materials, how rigorously
2 they've viewed the literature, and how they
3 present their materials to the rest of the
4 class and to me. That's what this class is
5 all about.

6 Q. I see. So, would it be fair to

7 characterize it more as a sort of a
8 literature analysis course in how you
9 analyze the scientific literature out there
10 to come to a decision whether or not a
11 particular decision is ever reached?

12 A. That's good. That's fine.

13 Q. What do you tell them about
14 sources for literature? How do you divide
15 that out? You gave an example of a CEO's
16 presentation versus something written in
17 epidemiology by someone from a respected
18 institution. What do you talk to them about
19 reference that kind of bias?

20 A. Uh-huh. Well, I try to make it
21 clear that there are different levels of
22 literature that we need to rely upon, and
23 there are -- I sort of put editorials and
24 abstracts at one level, at sort of the
25 lowest level. Doesn't mean they're not

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1 valuable, doesn't mean that they -- that
2 abstracts and editorials can't tell us
3 something very valuable. They may very well
4 do that. It's just that abstracts are not
5 complete, by definition. And editorials are
6 just that, they're giving personal
7 opinions. And, so, you have to view where
8 that's coming from. So -- so, that's one
9 level.

10 Then, the next level up, so to
11 speak, are chapters and invited
12 presentations in scholarly journals. Again,
13 they may be very useful. They may be
14 written by people who are absolute experts
15 in the field and you'd want to know
16 everything they said, but because they're
17 not peer reviewed, they, again, need to be
18 considered as to who is writing it, what the
19 literature review looks like in that
20 article, and -- and whether or not there are
21 primary data in those articles, which,
22 typically, there are not.

23 And then, finally, you get to
24 what we call the peer-reviewed literature.
25 Now, the peer-reviewed literature isn't

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1 necessarily perfect, but it's the best we
2 have now for relying upon a set of data.
3 The primary data to make your point should
4 be in that article, open for scrutiny, and
5 having been reviewed by experts in the
6 field. And, again, where does it come
7 from? You need to know what the level of
8 the journal is, is it in "Science" versus
9 some obscure journal we don't know anything
10 about, or -- basically, that's it, and who
11 the senior author is. Is the senior author

12 responsible for the work or is it some --
13 somebody else? Or who's sponsoring the work
14 is important to know. Those are things that
15 we need to understand.

16 Q. Now, when you say "sponsoring
17 the work," do you also refer to funding? Is
18 that what you mean?

19 A. Sure. Exactly. Uh-huh.

20 Q. And why does that matter?

21 A. Well, if your work is funded by
22 the National Institutes of Health, it has
23 been validated at the highest level of
24 science that we have in the world. If your
25 work is supported through the years by the

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1 National Institutes of Health, by the
2 National Science Foundation, it has been
3 reviewed not by one, not by two, but by
4 dozens of people at several different
5 levels, and it's a -- a very effective
6 measure of what you're doing.

7 Now, if your work is funded by
8 just, as an example, without any motives or
9 anything else, if it's funded by a company
10 that -- that makes dioxin, for example, you
11 might view it just a bit differently. That
12 doesn't mean -- if it's in the peer-reviewed
13 literature, that doesn't mean the data is
14 not perfectly valid. It's just something

15 that you need to consider.

16 Q. And why do you need to consider
17 it?

18 A. Look, no matter how good a paper
19 is, you can always get biases into what you
20 see, and -- and you just have to know that.
21 I mean -- and I think that, you know, it's
22 sort of like -- it's like anything that --
23 there are a lot of ways to bias what you
24 see, and whether or not you realize it, that
25 can happen. It happens to all of us. And,

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1 so, we have to view data depending on the
2 source, and if the source turns out to be
3 perfectly valid over the years, no matter
4 what it is, that's fine.

5 Q. Doctor, have you ever taken
6 money from one of those sources that you
7 should look more askance at in the
8 publication of your research?

9 A. You know, I'm not sure just what
10 you mean, but have I used money for my
11 research other than from the National
12 Institutes of Health or --

13 Q. Sure.

14 A. Yes, sure, I have. I have
15 used -- I have money from some
16 pharmaceutical industry to look at drugs

17 like steroids, and I put that down at the
18 bottom of my paper, and if somebody thinks
19 that they should consider that, then, that's
20 what they should do. That's fine.

21 Q. Well, I'm interested in whether
22 or not you think you should consider it.
23 Specifically, do you think in the cases
24 where you've taken money from private
25 industry, whether it be pharmaceutical

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1 companies or others, do you think that that
2 has biased your research?

3 A. No. I would say I am sure it
4 hasn't, but you still have to know that just
5 in case I don't see that bias. Everyone has
6 got to know the source of the funding.

7 Q. I see. So, one of your students
8 who, for instance, were to pull an article
9 by you, should -- to get a good grade in the
10 course, should call into question your
11 research or, at least, raise that issue if
12 you took money from a private firm or
13 industry to sponsor the research?

14 A. Before I ask you to repeat the
15 question because I'm not exactly sure what
16 you said --

17 Q. Okay.

18 A. -- let me clarify something. I
19 mean, to get an A in the course, I don't

20 really care where the material that the
21 students -- come from. I just want them to
22 understand the issues of what it is that you
23 look at when you're evaluating an article.

24 Q. I understand.

25 A. Okay.

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1 Q. So, if they were pulling --
2 let's say that they were studying macrophage
3 clearance of asbestos fibers in the alveolar
4 duct bifurcation, and let's say that that
5 happened to be something you had written on,
6 and let us say, for example, that money for
7 that research had come from industry. They
8 should look at that with some skepticism
9 because of potential bias?

10 A. Skepticism may be a little hard,
11 but yeah, I think that's right. I mean, if
12 I was supported by the asbestos industry and
13 I were writing papers on asbestos, I think
14 that the readers of the paper should know
15 that and they should look at that data, not
16 necessarily -- and I didn't -- I hope I
17 didn't imply that because it's supported by
18 that industry or any other industry, it's
19 wrong. I mean, that's certainly not the
20 case. I wouldn't expect it to be. Since
21 it's in the peer-reviewed literature, which

22 is what we're talking about now, I would
23 expect it to be right, but it doesn't -- it
24 may not be. And even if I write data
25 supported by the NIH, it may not be right.

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1 I mean, you always have to have a certain
2 degree of skepticism, whatever the source
3 might be, you know, so --

4 Q. Do you think it's proper -- you
5 review as part of the peer-review process,
6 don't you?

7 A. Regularly.

8 Q. Who do you review for?

9 A. Well, it's actually listed on my
10 CV. I mean, it might be easier, so I don't
11 forget anything.

12 Q. Just mention a few of them.

13 A. "American Journal of Pathology";
14 "American Journal of Respiratory and
15 Critical Medicine"; "Journal of Clinical
16 Investigation"; "American Journal of
17 Respiratory" -- "American Journal of
18 Respiratory Cell Molecular Biology"; the
19 "American Journal of Physiology"; "Lung
20 Cell Molecular Biology"; "Experimental Lung
21 Research." Those are the ones that I do
22 most of it for.

23 Q. Okay. And, Doctor, when you
24 review those articles, let's say, how does

25 that come to you? Does it just come as a

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1 manuscript from the person in charge of the
2 review?

3 A. That's right.

4 Q. And you're asked to provide your
5 comments?

6 A. That's right.

7 Q. Have you ever suggested
8 something not be published in the
9 peer-reviewed literature? Have you ever
10 rejected an article or voted against it?

11 A. Many times.

12 Q. Okay. What are some of the
13 reasons?

14 A. Oh, the reasons are the data
15 don't confirm the conclusions, don't
16 correlate with the conclusions drawn; the
17 work was incomplete; the writing was not
18 understandable. Could be a variety of
19 different reasons like that. I mean, they
20 are scientific reasons.

21 Q. Have you ever voted against an
22 article based on its funding source?

23 A. No, not that I recall. I don't
24 believe I've ever done that.

25 Q. Has that ever been a factor in a

1 rejection?

2 A. I'm thinking back. The American
3 Thoracic Society has two journals, and their
4 policy is not to fund any papers supported
5 by, quote-unquote, tobacco industry
6 sources. So, I was asked as a member of the
7 editorial board to consider that concept and
8 vote yes or no, but after that, I don't
9 remember specifically rejecting an article
10 based on any criteria as you've indicated.

11 Q. When you were asked -- when you
12 said that you were asked to consider the
13 concept, did you mean to vote on whether or
14 not that's a good idea --

15 A. That's right.

16 Q. -- to have as a policy?

17 A. Yes.

18 Q. And how did you vote on that?

19 A. I voted along with the rest of
20 the editorial board to -- to assume that
21 policy.

22 Q. All right. Now, let me ask you,
23 how do you square that vote or that belief
24 with your previous statements about merely
25 considering the source and allowing others

1 to draw their own conclusions?

2 A. Right. I had some difficulty
3 with that, I must -- I must say. I didn't
4 at first think it was a smart thing to do,
5 but I thought, in the best interest of the
6 journal, that those particular sources, it
7 would be best for the journal if there were
8 not any controversy related to articles that
9 were supported by tobacco. So, that's the
10 way I voted.

11 Q. Okay. I'm not sure I quite
12 understand what you meant. You said a
13 couple things. You said, in the best
14 interest of the journal and, you said, it
15 would be better if there were no
16 controversy. What did you mean by that?

17 A. Well, I mean, there are a lot of
18 people who are involved in the editorships
19 of the journals and who -- who feel -- and I
20 can't give you any names because I'm not
21 sure -- this was about ten, 15 years ago
22 that this happened -- that felt that some
23 papers that were supported by the tobacco --
24 I guess it's Council for Tobacco Research,
25 or whatever it was that was supplying

1 monies -- that these papers had some biases
2 or -- or -- you know, I can't give you the

3 real -- the appropriate scenario, the
4 specifics, but the journal editorial office
5 wanted to remove itself from any
6 relationship or apparent source of bias
7 in -- from any of the authors that were
8 sending papers in. I mean, I can't sit here
9 and defend that. Like I said, I don't think
10 it's a great idea, but it was at the time a
11 concept that I sort of went along with
12 and -- you know, in the end, today, I think
13 it was probably a good idea because now it
14 was something that we just haven't had to
15 deal with over the years, and the quality of
16 our journals is better -- even better than
17 it was, so, I think, probably, it was a good
18 decision.

19 Q. So, did I understand you to say,
20 at least, by implication that -- that part
21 of the quality increase in your journal --
22 in that journal occurred because of the
23 policy not to accept research funded by
24 tobacco or tobacco industry or anything
25 related to tobacco?

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1 A. I don't know if that's true. I
2 can't say that. All I can say is that the
3 journal -- the journals have gotten better.
4 Whether or not it has anything to do with
5 that, I can't tell you.

6 Q. I just wondered why you said
7 it.

8 A. I'm just saying that that
9 happened and the journals got better, but
10 I'm not saying that it had anything to do
11 with that. I don't know that.

12 Q. As far as you know, are there
13 any other taboo sources of funding money or
14 research funding that will not allow a paper
15 into that journal?

16 A. Not that I know of.

17 Q. Okay. Did it seem to you at the
18 time, or does it now, in retrospect, to have
19 been at least partly a political issue
20 rather than a strictly scientific issue?

21 A. I'm not sure what kind of
22 politics would be involved. I mean, it
23 certainly -- I guess if appearances are
24 politics, I guess maybe that has something
25 to do with it. In other words, here we are,

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1 the American Thoracic Society, which is the
2 leading international organization that
3 treats and deals with lung diseases,
4 publishing articles supported by money from
5 tobacco industry. I mean, that's appearance
6 and potential raising opportunities for
7 conflict-of-interest discussions. Whether

8 or not that's true, I don't know. But if
9 that's what you mean by politics, that's the
10 way I saw it.

11 Q. Okay. If you were teaching your
12 students about how to deal with the peer-
13 review process, let's say that one of them
14 came up to you after class and said, you
15 know, they'd eventually like to get into
16 research and get into peer-review, would you
17 ever suggest to one of your students that
18 that's an appropriate way to deal with the
19 issue, is to just ban certain sources of
20 funding for publication, for publication in
21 any particular journal?

22 A. I would say that's generally not
23 a good idea.

24 Q. Why do you think it's not a good
25 idea?

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1 A. Well, because I think some
2 useful data can come from industry and, in
3 general, it can. Now, in this particular
4 case, we're talking about tobacco and
5 respiratory disease journals. So, in that
6 case, as I say, in retrospect, when it
7 happened then, I wasn't all for it. But, in
8 retrospect, that if you're going to make a
9 decision that's like that, that that's --
10 that's one that could be made and one that

11 was made. But, in general, you're asking me
12 in general, I would say that that's not a
13 good idea.

14 Q. Well, Doctor, have you ever been
15 involved in any sort of work funded by money
16 from either the CTR or from tobacco
17 companies?

18 A. No. Now, when I was at the
19 University of Vermont, I worked for -- with
20 Dr. John Craighead, who was the chairman of
21 the department, and he had money from the
22 Council for Tobacco Research, and we wrote
23 papers together. Now, I'd have to go back
24 and look at every paper to be able to answer
25 as to whether or not that was -- any of

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1 those papers were supported by the CTR. I
2 can't tell you off the top of my head. But
3 if -- if that were the case, I'd have to
4 answer yes, but I don't recall that being
5 the case and, certainly, since I started my
6 own laboratory and I was responsible for the
7 work, that's not been the case.

8 Q. And Dr. Craighead was the person
9 you believed had received money?

10 A. Oh, I know he did. I mean, I
11 recall visitors from the CTR coming to the
12 department.

13 Q. Okay. And do you have an
14 opinion as to the quality of his research?
15 A. Oh, his research was
16 outstanding.
17 Q. And, in your view, was the
18 outcome of his research affected by its
19 funding source?
20 A. Not that I know of.
21 Q. Do you have any reason to
22 believe it was?
23 A. No, I don't.
24 Q. Okay. Do you know whether or
25 not in the past the Surgeon General of the

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1 United States has relied on research funded
2 by any tobacco industry or other such
3 funding?
4 A. I don't know that.
5 MR. DUNCAN:
6 We've been going about an
7 hour. Why don't we take a break?
8 THE VIDEOGRAPHER:
9 Off the record at 10:34.
10 (Whereupon, a discussion was
11 held off the record.)
12 THE VIDEOGRAPHER:
13 Now returning to record. It
14 is 10:43.
15 EXAMINATION BY MR. DUNCAN:

16 Q. Doctor, if I could, I'd like to
17 explore a little bit your work in the
18 hospital setting. Where do you spend -- if
19 I were to ask you to divide your day out and
20 what you do every day, what is it that you
21 do most of the time, and where do you do it?

22 A. Well, I'm at the Tulane
23 University Medical Center, which is downtown
24 New Orleans. I spend most of my time in the
25 research lab and in my office, which are

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1 contiguous. I have students, graduate
2 students, technicians, young faculty which
3 I've hired into my -- what's called the Lung
4 Biology Group, and I write papers and view
5 papers and attend conferences and do all the
6 things that a university professor does.

7 Q. Okay. Now, you mentioned that
8 you teach a sophomore class, one on
9 Environmental Toxicology, and what was the
10 other one?

11 A. You're a little confused,
12 because the sophomore courses is the medical
13 school course --

14 Q. Okay.

15 A. -- and the toxicology course
16 that you were asking me so much about
17 earlier, that's for graduate students in the

18 School of Public Health.

19 Q. School of Public Health. I
20 see. And, so, is it just one course that
21 you teach in medical school?

22 A. In the medical school, that's
23 correct, and I give two lectures in that
24 course.

25 Q. And can you tell me what the

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1 substance of those lectures is?

2 A. Yes. The first lecture that I
3 give is called Cytokines. And cytokines is
4 C-Y-T-O-K-I-N-E-S, are chemical messages,
5 chemical signals. This is the way cells
6 talk to each other, basically, how they
7 signal their movements and -- and there are
8 a -- large number of cytokines, and I
9 describe to medical students what cytokines
10 are and how they work.

11 The second lecture I give is
12 called The Mechanisms of Pneumoconiosis, and
13 pneumoconiosis is the lung diseases caused
14 by inhaling inorganic particles. So, I
15 describe to the medical students how inhaled
16 particles cause the various diseases that
17 they do.

18 Q. What inhaled particles do you
19 specifically discuss?

20 A. I talk about asbestos and

21 silica. I talk about the particulates that
22 are inhaled from cigarette smoke. I talk
23 about talc and other inorganic particles.
24 Q. How long have you had the
25 cigarette smoke component part of that

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1 course? Has that been since you started the
2 course?
3 A. Oh, yes.
4 Q. Okay. And what particulate
5 matter do you tell students are inhaled from
6 cigarette smoke?
7 A. Well, there are aluminum
8 silicates that are identified years ago as
9 being the dusty component, the inorganic
10 part of the cigarette smoke, gets into the
11 macrophages. It's one of the identifying
12 characteristic of, quote-unquote, smokers'
13 macrophages. And, so, that's really the
14 inorganic phase that I talk about cigarette
15 smoke.
16 Q. Okay. And do you have any
17 opinion as to the dose that an individual
18 would get of that particular compound?
19 A. I've never done that. I don't
20 know that -- I've never tried to do that.
21 Q. Would it be fair to say that
22 it's a low dose?

23 A. You know, I really don't know.
24 I mean, if a person's --
25 Q. Don't know either way?

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1 A. I just don't know. I mean,
2 there's lots of -- there're a lot of
3 inorganic particles in people's lungs. Some
4 of it comes from if they smoke and some of
5 it comes from the environment. So, I mean,
6 it's -- it's -- I actually wouldn't want to
7 try to do that.

8 Q. So, you've never quantitated it?

9 A. I have not, no.

10 Q. Okay. Now, what is your --
11 other than teaching the one medical school
12 course, what else is your interaction with
13 the medical school?

14 A. I do -- well, my interaction
15 with the medical school is multiple. I
16 mean, I'm on the Personnel and Honors
17 Committee and I'm in charge of the Dean's
18 Forum for Advances in Research. I serve on
19 a number of various committees. I'm on the
20 Faculty Advisory Committee. I'm a tenured
21 college professor, so, I do all the things
22 that professors do. I do more of that sort
23 of thing than I do teaching, but --

24 Q. Well, I was looking for more of
25 the substantive other than the

1 administrative. For instance, your
2 interaction with physicians?

3 A. Well, that's on a regular
4 basis. I mean, physicians are on both sides
5 of me --

6 Q. Right.

7 A. -- and throughout our
8 department, Pathology Department, Department
9 of Medicine. The Division of Pulmonary
10 Diseases is where my office is. So, I mean,
11 it's a regular, interactive, day-to- --
12 moment-to-moment basis. It's just part of
13 the ongoing day.

14 Q. Sure. When you talk to -- first
15 of all, are there pathology residents,
16 medical doctors who are pathology residents
17 there?

18 A. Certainly.

19 Q. Do you work with them at all?

20 A. I do, yes.

21 Q. And tell me what sort of work
22 you do with the residents.

23 A. Well, we have several of the
24 residents working in our research labs. In
25 other words, they are doing their typical

1 pathology things that they do to train, but
2 we have a couple of them doing work in the
3 research labs, and mine included. So, I
4 would be explaining to the residents how the
5 asbestos-induced lesions develop, showing
6 them how they work, how their work can
7 benefit from understanding the basic biology
8 and, hopefully, they'll go into research --
9 academic medicine themselves one day.

10 That's why we try to get them into the
11 research labs.

12 Q. Do you ever advise on specific
13 cases? Let me explain that. Do you ever
14 have either a staff pathologist or a
15 resident come to you with pathology
16 materials and ask you for your readout on
17 it, or your opinion?

18 A. I've done that over the years in
19 the past, but it's not usual. I mean, it's
20 not typical for that to happen. There's no
21 reason that -- since I'm not adding to
22 the -- to the final diagnostic sign-up. But
23 am I asked my opinion about what I see in a
24 given lung, yes, and maybe that can happen
25 once a month or so.

1 Q. What sort of things are you

2 asked?

3 A. Well, I'm asked do I see
4 asbestos bodies in this tissue? Do I see --
5 what's the nature of the inflammation? What
6 kind of inflammatory cells are here? Is
7 this an advanced case of asbestosis, for
8 example? I mean, typically, these would be
9 asbestos-exposed individuals that I would
10 see, the tissues that I would see. So,
11 those would be the kinds of questions that I
12 would get asked.

13 Q. Do your opinions ever make it to
14 the final diagnosis? I mean, can you -- if
15 you've ever seen it, is what you told them
16 incorporated in that, or have they reached
17 their own decision?

18 A. I don't know whose -- I'm sure
19 they reach their own decisions. Whether or
20 not my opinions have helped them in some
21 way, I'm not sure. Certainly, my -- my
22 imprimatur is not anywhere on any of the
23 diagnostic reports, and if they were, I
24 probably wouldn't know it anyway because I
25 don't go and look at the reports.

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1 Q. When you look at pathology
2 material -- let's say that a pathologist
3 says, Dr. Brody, have you got a minute for a

4 deskside consult, could you take a look at
5 this lung specimen, do you get the
6 background information on that patient?

7 A. Yes.

8 Q. Do you ever ask for it, or does
9 it just come --

10 A. Well, it's part of the
11 consultation, I mean.

12 Q. Tell me what sort of information
13 you might get.

14 A. How long the person was exposed,
15 where they were exposed, how old the person
16 is, they smoke cigarettes or not, those
17 kinds of things.

18 Q. Why would you like to know,
19 first of all, how old they are?

20 A. Well, when a person is older,
21 the -- I mean, if it's a cancer -- if the
22 question is whether or not it's a cancer,
23 you might expect to see a cancer in an older
24 person. I mean, that's not a really --
25 that's sort of just informational than

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1 anything else. That's not really important.

2 Q. Do you want to know gender?

3 A. No.

4 Q. Okay. And there was some other
5 information that you wanted to know. You
6 wanted to know whether or not they smoked?

7 A. Right.

8 Q. Why is that important to you?

9 A. Well, if you see certain lesions

10 in a person's lung, you -- and you know that

11 they smoked or didn't smoke, it helps you

12 understand the source of what the lesions

13 are.

14 Q. Okay. And is there anything --

15 is there anything about a particular lesion

16 that you might see under a microscope? And

17 let's just talk about light microscopy for

18 right now. Is there anything that you can

19 see in a lesion that would tell you that

20 this lesion was caused by a particular

21 etiologic agent?

22 A. Yes, there are --

23 Q. So, give me an example of a

24 lesion that would -- that you'd be able to

25 look at under a light microscope and,

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1 without knowing more, determine the

2 causation.

3 A. Well, if a person had some

4 scarring at ducts at the ends of the small

5 airways and they were asbestos bodies

6 embedded in that scar, I would know that

7 that's an asbestos-induced scarring process.

8 Q. Okay. So, you would want to see

9 asbestos fibers sticking out of it?

10 A. Well, that would help. I mean,

11 based on your question --

12 Q. Right?

13 A. -- I mean, you know, I'm

14 answering that question. So, in that case,

15 I could tell you. Now, if the person had

16 emphysema and the -- and the -- the lung was

17 loaded with cigarette smokers' macrophages,

18 I would make the assumption that this was

19 smoke-induced emphysema.

20 Q. Just because you see the two

21 together, that would give you enough

22 information to make that diagnosis?

23 A. Well, I would ask if the person

24 was a smoker, but -- but given the scenario

25 you just gave me, I'm just looking at the

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1 tissue --

2 Q. Correct.

3 A. -- I don't know anything else.

4 If I see asbestos in the scar, I'll say it's

5 an asbestos-induced lesion. If I see

6 emphysema and evidence of smoking, then, I

7 would say that that's smoke-induced

8 emphysema.

9 Q. Let me ask you, what is a

10 smokers' macrophage?

11 A. Well, these are enlarged

12 macrophages that have large amounts of
13 pigment in them. They tend to be found in
14 large numbers in the alveolar spaces of
15 cigarette smokers.

16 Q. Okay. What do they look like
17 that makes them different from other
18 macrophages?

19 A. Well, when you -- well, first of
20 all, they -- you actually can't tell on an
21 individual macrophage unless you look at it
22 by electron microscopy.

23 Q. Okay.

24 A. But when you look at it under
25 electron microscopy, they have some very

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1 characteristic clefts, and I describe that
2 in one of my papers, where -- and they have
3 a lot of crystalline material in them, more
4 than the average macrophage. So, it's
5 just -- there are not strict criteria that
6 you only find in these macrophages, but when
7 you look at the lungs of smokers versus
8 nonsmokers, you find many increased numbers
9 of these particular cells.

10 Q. Well, I guess that was my
11 question, Doctor. If you look at a
12 particular macrophage, say, with an electron
13 microscope, is it possible to determine,

14 yes, that is a smoking or a smoker's
15 macrophage and it could have been caused by
16 nothing else? Can you say that?
17 A. I would say that it's most
18 likely to be caused by cigarette smoking. I
19 mean, that's the only place you can find
20 them in large numbers. Can you find a
21 macrophage like that in a person who doesn't
22 smoke? Maybe. Be very hard to do. I
23 wouldn't want to spend my time trying to do
24 it, but you might be able to find one.
25 Q. Okay. Now, you mentioned that

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1 you get consults and, I would assume,
2 primarily for asbestos-exposed -- exposed
3 lungs, correct?
4 A. Right, and I don't want to give
5 you the impression that this is what I do on
6 a routine basis. I mean, I may be asked --
7 Q. Sure.
8 A. -- somebody might come in and
9 ask me about this, but I don't go looking
10 for them and this is not an important part
11 of my job.
12 Q. I understand.
13 A. Okay.
14 Q. I understand. Are you ever
15 asked to look at cancer lesions?
16 A. Really, mesotheliomas, really,

17 are the only ones that I typically get asked
18 to look at. But, again, not a lot of them.
19 Lung cancers in people who have been exposed
20 to asbestos, lung cancers with asbestosis,
21 I've looked at some of those, yes.

22 Q. Okay. Well, give me an example
23 of what you would be looking for if someone
24 were to -- or what you'd be asked to provide
25 if someone were to show you a slide, lung

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1 cancer slide, from a lung cancer patient,
2 and you understood, let's say, that this
3 person had been exposed to asbestos. Tell
4 me what you're looking for or what you're
5 asked to look for in a slide like that.

6 A. Well, I would like for asbestos
7 bodies. I would look for the kind of
8 scarring at the bronchial or alveolar level
9 that is typical of asbestosis. So, that's
10 really what I'd be looking for.

11 Q. Well, let's suppose, Doctor,
12 that this were more of a central cancer and
13 you didn't have anything in the particular
14 field that you were looking at that would be
15 down to the level of the alveolar ducts, and
16 we're just talking bronchial specimens.
17 Would you be looking for anything particular
18 there?

19 A. If it's just tumor, I wouldn't
20 be of any help at all, and I wouldn't -- if
21 somebody brought me that, I would say
22 there's really not much I can do. If it had
23 airway, I mean, I suppose I could -- be
24 interesting for me. I would see whether or
25 not there were -- there was chronic

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1 bronchitis or inflammation, but, I mean,
2 these are, again -- this is not typically
3 what I would do, and I don't think I would
4 have much to add in a case like that.

5 Q. Okay. Can I take it then that
6 you don't feel that your area of expertise
7 is in the diagnosis or etiology
8 determination of lung cancer?

9 A. Well, it's not.

10 Q. Okay. So, you would never look
11 at, for instance, a pathology specimen of
12 somebody's squamous cell cancer, let's say,
13 and say, oh, yes, as an expert in this
14 field, I can tell you not only what cell
15 type it is, but what caused it?

16 A. I wouldn't do that.

17 Q. Okay. You wouldn't do that.
18 And let's say that you had this specimen and
19 let's say that it was not just tumor, but
20 also included adjacent airway, ciliated
21 airway, and you saw asbestos bodies or

22 asbestos fibers in that section. Would you
23 feel confident in stating that you knew what
24 the cause of that cancer was, and would you
25 ascribe it to asbestos?

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1 A. Well, I'd certainly want to know
2 something about the history of the person.
3 I mean, if the person was a cigarette smoker
4 and was exposed to asbestos, then, I mean,
5 we know about the contributing causes and
6 the synergies related to the asbestos and
7 cigarette smoking. So, they certainly both
8 are carcinogens and can cause cancer, and I
9 would ascribe the cause to those exposures.

10 Q. So, what would your answer be if
11 you saw both, you knew -- and let's say that
12 in this case you knew that the individual
13 were a smoker and you knew that they had
14 been exposed occupationally heavily to
15 asbestos, and with or without fibers
16 present, what would your determination be?

17 A. Well, my opinion there would be
18 that -- that both of those exposures
19 contributed to the development of the
20 cancer.

21 Q. Okay. Now, you mentioned -- you
22 mentioned synergy issues, and we'll talk
23 about that in a minute. If the person had

24 not been a smoker, would you have the same
25 opinion or would you just say asbestos

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1 caused, or would you say asbestos may have
2 caused it?

3 A. If the person were not a smoker
4 and there was evidence of asbestos exposure,
5 I would give the opinion that the asbestos
6 caused the cancer. It's unlike -- it's
7 unusual to find asbestos -- cancer in an
8 individual who's only been exposed to
9 asbestos, but there are -- there is an
10 increased risk there.

11 Q. About how much of an increased
12 risk, Doctor?

13 A. I don't know. I've seen four or
14 five times over background.

15 Q. Is that a large risk or a small
16 risk?

17 A. You know, I'm not an
18 epidemiologist, but I think that's a -- sort
19 of a -- it's a measurable small risk, but --
20 but clearly there.

21 Q. Okay. Doctor, you have
22 testified, you said, in numerous individual
23 plaintiff asbestos cases, correct?

24 A. Right.

25 Q. And about how many of those

1 cases can you recall -- percent or number is
2 fine -- was the plaintiff also a smoker?
3 And let's talk about cancer cases for right
4 now, lung cancer cases.

5 A. Probably every -- not -- not
6 every one, but probably close to it.

7 Q. Okay. Doctor, in how many of
8 those cases was it your testimony that the
9 cigarette smoking caused the individual's
10 lung cancer?

11 A. Well, I'm typically asked if
12 the -- if the individual had only smoked,
13 could he still get the cancer. I mean,
14 that's the question I'm asked. Then, I say,
15 yes. I mean, cigarette smoking causes
16 cancer. So, my answer is yes. Now, he
17 was -- now, this particular person we're
18 talking about now has asbestos exposure as
19 well and, so, the asbestos exposure
20 contributed to the cancer and was a cause of
21 the cancer.

22 Q. And that -- that has been your
23 testimony in the past, that both of them
24 contributed, and asbestos was one of the
25 causes?

1 A. Well, it depends on the way I'm
2 asked the question. My -- my -- certainly,
3 my opinion is that asbestos contributed to
4 and, therefore, was a cause of the cancer.
5 Now, if I'm asked, does cigarette smoking
6 contribute to, which is typically what the
7 defense on these cases ask me, I say yes.

8 Q. Well, let's talk about your
9 testimony on direct examination. Do -- is
10 it ever brought out through your testimony
11 on direct examination that cigarette smoke
12 is a cause or contributed to this
13 individual's lung cancer?

14 A. Well, certainly, I can't tell
15 you every time what's happened, but I recall
16 the plaintiff's counsel asked me not --
17 cigarette smoking causes cancer, does it --
18 does it not, Doctor, and my answer is, yes,
19 it does, and that's direct testimony, but
20 then the point is then we go into the
21 synergies of it, and that's where we get
22 into the asbestos story. I mean, you know
23 as well as I what the issues are. So, I'm
24 testifying on what asbestos does, and that's
25 where the weight of the testimony and my

1 testimony is.

2 Q. Okay. So, would it be fair to

3 say that your role there is to -- to assist
4 in the explanation of where this cancer came
5 from and that your focus is on the asbestos
6 side of that?

7 A. That's right. But, certainly,
8 in my testimony, I state that -- that if
9 there's cigarette smoking, there's damage to
10 the airways, and this is the site of the
11 cancer and there's more asbestos in the
12 airways of these people who smoke, and this
13 is part of the synergistic process that
14 leads to cancer, and asbestos is a central
15 component of that, or an important part of
16 that.

17 Q. Okay. Do you ever try to, in
18 one of those cases, allocate the risk?

19 A. No.

20 Q. And why not?

21 A. I can't do that. I wouldn't
22 know how to do that.

23 Q. You wouldn't know how to
24 allocate risk between two independent
25 carcinogens?

1 A. That's correct.

2 Q. Okay. You mentioned that you
3 talked about or -- reference to the
4 synergies. What do you mean by the

5 synergies of cigarette smoking and asbestos?

6 A. Well, the simplest way to state
7 it is it's a multiplication of the observed
8 effects rather than an addition of the
9 observed effects.

10 Q. Okay. And we'll probably spend
11 a little more time on that later.

12 Have you ever testified as to
13 synergy?

14 A. I have, in it's simplest form,
15 explaining that -- yes, in it's simplest
16 form.

17 Q. Okay. And have you ever
18 ascribed -- and a moment ago, you told me
19 that you didn't deal in trying to allocate
20 causation, that it was more likely this than
21 this and here's why. So, I take it then
22 that applies with equal force to the issue
23 of synergy. You have never then testified
24 in a case that it was either the asbestos
25 alone or the cigarette smoke alone or the

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1 synergistic interaction of the two? You
2 have never said which one of those three it
3 was for an individual's lung cancer; is that
4 right?

5 A. Well, I -- I think that I
6 have -- what I've tried to do is explain
7 that there is synergy, and I've testified to

8 that a number of times, and here are people
9 who are known to be smokers and who are
10 exposed to asbestos, and -- and there is a
11 synergy and -- and that, by definition,
12 would mean there is a synergy in causing
13 cancer, and that, by definition, would mean
14 to me that these two materials are
15 introducing their carcinogenic potential to
16 the cells and -- and there has been a
17 cancer.

18 Q. Other than your testimony at
19 trial, have you ever given any presentations
20 that were -- that dealt with either
21 cigarette smoking or cigarette smoking and
22 asbestos? And let's just take cigarette
23 smoking first. Have you ever given any
24 presentations on the health effects of
25 cigarette smoking?

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1 A. I have -- well, not -- not --
2 let's see. Other than in class? I'm
3 sorry.

4 Q. Other than in class, correct.

5 A. Okay. Other than in class and
6 other than in the courtroom?

7 Q. Correct.

8 A. Okay. So, there was an Andrews
9 asbestos conference in New Orleans a couple

10 of weeks ago, and I gave some of my opinions
11 on how I think synergy actually works. I
12 spent a few minutes describing that.

13 Q. Who asked you to present at this
14 conference?

15 A. The Andrews publications.

16 Q. Okay. And did they just out of
17 the blue contact you about this, or was it
18 through a law firm?

19 A. As far as I know, it wasn't
20 through a law firm. I mean, they -- they
21 have advisors from various law firms,
22 defense firms and asbestos plaintiffs'
23 firms, and they develop a list of presenters
24 and speakers, and they asked -- and they
25 asked me to participate.

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1 Q. And what did you talk about
2 there in more detail than what you
3 previously said?

4 A. I talked about how we're using
5 genetically defined mice to understand
6 the -- how genes function in the airways and
7 how we're altering the expression of the p53
8 gene to produce mouse models of lung
9 cancer.

10 Q. Okay. Was there anything
11 published from this presentation?

12 A. No. There was a binder for

13 the -- for the participants, but --
14 Q. What was in the binder?
15 A. Well, I don't know. I guess
16 there was -- every speaker presented -- you
17 know, gave some papers and things, so, I
18 gave one of my published papers as
19 background for what I do.
20 Q. Do you recall which published
21 paper you gave?
22 A. Yes, I do.
23 Q. What did you give?
24 A. It was the chapter -- in my list
25 of chapters, I gave them Number 37.

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1 Q. Okay. Have you ever, other than
2 this one presentation, given any lectures on
3 smoking and health, or presented at a
4 government function or anything like that?
5 A. Not that I recall, no, sir.
6 Q. Okay. And you said -- when I
7 asked you before, you clarified whether or
8 not I meant in class. Do you talk to the
9 medical students about smoking and health
10 issues?
11 A. I do. I do.
12 Q. And what do you tell them?
13 A. Well, I don't talk about health
14 issues so much as I talk about the smokers'

15 macrophages and that -- that cigarette --
16 heavy cigarette smoking can cause some
17 scarring at the ends of the small airways
18 because I'm talking about pneumoconioses
19 and, so, I'm explaining to them scarring.
20 And, so, I describe that to the medical
21 students and show them pictures of that.
22 Q. Why do you tell them about
23 scarring at the ends of the small airways?
24 A. Well, pneumoconioses are
25 typically scar -- scarring processes, and

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1 the inorganic particulates that are
2 associated with cigarette smoke are in the
3 macrophages and -- and are collecting at the
4 ends of the small airways and they're
5 associated with the scarring associated with
6 cigarette use. So, it's sort of part of the
7 story, and it makes an interesting -- and
8 the students find it interesting. They
9 don't know much about this particular aspect
10 of cigarette smokers' lungs. I show them
11 the pictures where if you're looking at a
12 whole lung section, a thin section through a
13 whole lung, you can actually see the
14 terminal bronchioles of the smokers have
15 black rings around them where they've
16 collected debris and particulates, and they
17 find that interesting and instructive as to

18 the patterns of accumulation of these
19 materials in the lung.

20 Q. Is cigarette smoking the only
21 thing that would cause the black ring around
22 the terminal bronchiole?

23 A. No. You can find those in
24 nonsmokers, particularly urban dwellers,
25 miners, coal miners would have very

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1 accentuated rings like that, but if you're
2 in a setting where a person is a smoker and
3 a nonsmoker, you can typically pick out the
4 smoker based on the coloration of the lung.

5 Q. Okay. Do you ever advise your
6 students whether or not they should smoke or
7 not smoke?

8 A. No. Well, I mean, if I see a
9 student -- a student smoking, I'll say
10 that's a pretty dumb thing to do, but I
11 don't give a lecture on whether they should
12 smoke or not.

13 Q. Doctor, have you ever been a
14 smoker yourself?

15 A. No.

16 Q. Ever smoked a cigarette?

17 A. Fortunately, I have not become
18 addicted to cigarette smoke, no.

19 Q. That wasn't exactly my

20 question. I said, have you ever smoked a
21 cigarette?
22 A. Oh, sure.
23 Q. Okay. When did you smoke a
24 cigarette?
25 A. Oh, over the years, I may have

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1 smoked even half a dozen cigarettes. I
2 don't know.
3 Q. Okay. And I take it that at the
4 time that you smoked those cigarettes, you
5 were fully informed of the risks associated
6 with smoking?
7 A. I don't know what I was informed
8 of at the time, actually. I mean, these are
9 just events over the years.
10 Q. You ever smoked a pipe?
11 A. There were a few years I thought
12 that was a tasty thing to do, yes.
13 Q. How long did you smoke a pipe?
14 A. Maybe a couple of years.
15 Q. When?
16 A. In the '70s.
17 Q. Okay. Safe to say that you
18 were -- had completed a good portion of your
19 schooling by the '70s?
20 A. Yes.
21 Q. And, so, were you informed of
22 the risks associated with smoking a pipe at

23 that time?

24 A. I think I knew the risks, yes,

25 sir.

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1 Q. Okay. And the reason you did

2 it, despite the risks, was what?

3 A. Tasted good, didn't inhale,

4 those kinds of things.

5 Q. I see. Did you make a conscious

6 decision not to inhale or --

7 A. Yes.

8 Q. Okay. And why didn't you

9 inhale?

10 A. Inhaling is a good way to

11 introduce carcinogens into your lung, and I

12 didn't think that was a good idea.

13 Q. Okay. How about cigars, you

14 ever smoked a cigar?

15 A. I do puff a cigar from time to

16 time, yes, sir.

17 Q. Still do?

18 A. Yes.

19 Q. Okay. Are you aware of any

20 risks associated with the smoking of cigars?

21 A. I'm sure there are risks, yes.

22 Q. You are sure that there are

23 risks?

24 A. Oh, yes.

25 Q. Okay. And the reason you smoke

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1 cigars is?

2 A. They taste good.

3 Q. Does it relax you? Is there
4 another reason to smoke it?

5 A. It's a -- I like the taste of
6 cigars.

7 Q. Okay. And I think it's -- then,
8 would it be safe to say that you don't
9 consider yourself to be addicted to cigar
10 smoking, do you?

11 A. No, I am not.

12 Q. Okay. And how do you know?

13 A. I haven't had a cigar in months,
14 and I really --

15 Q. Okay.

16 A. -- the next time I have a cigar
17 will be a treat, you know.

18 Q. Fair enough. I take it when you
19 tell your medical students that they
20 shouldn't smoke because it's a dumb thing to
21 do, or your graduate students, they are not
22 surprised by that, are they?

23 A. I wouldn't think so.

24 Q. Okay. All right. If I could,
25 I'd like to go back to your expert report

1 for a few minutes. You indicated that you
2 wrote this report?

3 A. Yes.

4 Q. Did you -- I notice -- I
5 couldn't help but notice, it was written in
6 the third person, but it was signed by you.
7 Were you told that was how to do it?

8 A. No, and a couple of people have
9 pointed that out, and I suppose I could have
10 written it in the first person, but that's
11 the way I did it, and whether or not that
12 was the right or the smart way, that's what
13 I did.

14 Q. That's fine. Have you -- would
15 it be fair to say that you have used
16 portions of this in other cases, this very
17 same report, or parts of it?

18 A. I think I have. I don't
19 remember exactly what -- what I did use
20 before or not.

21 Q. Well, did you cut and paste from
22 other reports that you had, or did you write
23 this from -- as it were a whole cloth?

24 A. I wrote this whole thing from
25 beginning to end, but whether or not I used

1 some language that I've used in other
2 reports, I may very well have, but I -- but
3 I didn't use the computer to cut and paste,
4 no.

5 Q. Okay. Did you type this
6 yourself on a computer?

7 A. Yes.

8 Q. Okay. Your very own fingers on
9 the keys?

10 A. That's correct, yes.

11 Q. Okay. And I'm looking at Page
12 4. It looks like it's printed differently.
13 Looks like it's actually a fax copy. How
14 did that come about, that we have a fax page
15 at the back of regular printed pages?

16 A. Well, if I remember correctly,
17 it's because when I sent this to -- to
18 Orrick, Sutcliffe in New York, there was not
19 a signature page. I just didn't provide a
20 signature page. I didn't know they needed
21 one. And, so, whatever iterations took
22 place to get one to me to sign, this
23 happened to it. I mean, that's all I can
24 tell you.

25 Q. Doctor, as part of those

1 iterations, did you do more than one draft
2 of this report?

3 A. There may have been an earlier

4 draft, yes.

5 Q. Do you have that draft?

6 A. I do not.

7 Q. Do you not -- you don't keep

8 drafts or --

9 A. I do not keep drafts of -- you

10 know, I think there may have been -- yeah, I

11 think there was an earlier draft. It wasn't

12 very different than this, but I certainly

13 don't have any earlier drafts.

14 Q. What were the differences?

15 A. I may have not put in things

16 about latency. I think there were some

17 questions about my opinions on how synergy

18 might work. So, it was really more of a

19 expanded -- the attorneys who asked for this

20 wanted me to expand it some.

21 Q. Did they tell you why they

22 wanted to expand it?

23 A. No.

24 Q. Okay. Did they suggest changes

25 that you could make?

1 A. No.

2 Q. Well, they told you what to

3 expand, right?

4 A. Well, in this particular area,

5 would you -- could you add some additional

6 information.

7 Q. They just told you to add some

8 additional information? They didn't tell

9 you what they wanted?

10 A. You know, if they did, I can't

11 tell you just what. I mean, certainly,

12 nobody told me what to put in here.

13 Q. Other than to expand it, as you

14 just mentioned?

15 A. Right.

16 Q. Okay. Dr. Brody, what is your

17 view of the role of an expert in court?

18 What do you perceive your job to be?

19 A. Well, my job, as I understand

20 it, is to help the jury understand how

21 asbestos and how cigarette smoke injures the

22 lung. That's what I'm going to try to do.

23 This is where my work has been and that's

24 what I'm going to do.

25 Q. I was thinking more generically

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1 as the role of an expert in a case. So,

2 could I -- would it be a correct paraphrase

3 of what you said that the role of an expert

4 in the case is to present information that

5 would be useful to a jury?

6 A. Yes.

7 Q. Okay. Do you believe that an

8 expert should be an advocate for either

9 side?

10 A. An expert can be. I don't know
11 about should be. It depends on where the
12 expert's coming from, I guess, as to what
13 their expertise is and what they're trying
14 to impart to the jury.

15 Q. Okay. Well, let me ask you
16 where Dr. Brody is coming from specifically
17 in regard to the Falise case. Are you an
18 advocate for either side in the Falise case?

19 A. I'm an advocate for getting the
20 information necessary to the jury. I mean,
21 I'm going to answer the questions asked, and
22 I'm going to advocate my views on what I
23 know. I mean, that -- am I going to give
24 the best testimony I can for one side?
25 Sure. If I -- when I testify for the

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1 asbestos manufacturers, I'm an advocate for
2 them, and when I testify for the plaintiffs,
3 I'm an advocate for them. That's what I'm
4 doing.

5 Q. Okay. So, you are an advocate
6 for the plaintiff in the Falise case?

7 A. Well, in the sense that I'm
8 going to answer the questions asked and give
9 them -- and give them the truth. And you
10 ask me questions, I'm going to answer them

11 truthfully and to the best of my ability. I
12 don't know what an advocate -- I mean -- am
13 I going to change anything because I'm
14 advocating an advantage from one side or the
15 other? I mean, I'm assuming that the
16 plaintiffs are asking me to do what I do to
17 give them an advantage. Now, I mean,
18 that's -- and I'll give my testimony to the
19 best of my ability because they're the ones
20 that asked me.

21 Q. I understand. You said you were
22 contacted about the Falise case about six
23 months ago?

24 A. Something. It may be as long as
25 nine, but it's six to nine months, I guess.

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1 Q. Okay. And the person who
2 contacted you again was who?

3 A. Mr. Stephen Kazan from Oakland.

4 Q. Okay. And what specifically did
5 he ask you to do?

6 A. He asked me -- well, he asked me
7 if I would present testimony in court to
8 describe to the jury how asbestos and
9 cigarette smoke injures the lung, and how
10 those two agents might work in synergy to
11 cause cancer.

12 Q. And you said you would?

13 A. Yes.

14 Q. And then how soon after that did
15 you start working on an expert report?
16 A. It was quite soon.
17 Q. Doctor, what is your
18 understanding of the case? What is this
19 case about, in other words?
20 A. My understanding is that there
21 are people in a trust -- I guess it's the
22 Manville Trust and maybe some other
23 trusts -- who are claiming or who have lung
24 disease and they're in that trust because
25 they've been injured by asbestos, and my

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1 understanding is that the people who
2 administer this trust or asbestos
3 manufacturers involved therein are trying to
4 recover a component of that cost for taking
5 care of these people from tobacco
6 companies.
7 Q. Okay. And do you have an
8 opinion as to the merits of that case,
9 whether or not one side should win or not?
10 A. This was the advocate question.
11 Do I think that --
12 Q. This question stands on its own,
13 Doctor.
14 A. Yes, I know. Do I think that
15 cigarette smoking injured some of these

16 people? Yes, I think it probably did. If
17 they have lung cancers, it injured them.
18 And, so, in that case, I've agreed to give
19 testimony that will help the jury decide
20 whether or not that -- that's true.

21 Q. Okay. I guess my specific
22 question was: Do you have an opinion as to
23 the merits? Do you have an opinion as to
24 which side should win?

25 A. Yeah. I think that the

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1 plaintiffs should be able to recover some of
2 the costs for taking care of those people.

3 Q. How much of the costs do you
4 think they should recover, Doctor?

5 A. I can't -- I really have no
6 opinion on that.

7 Q. Okay. Just, in general, you
8 think it's a good thing for them to recover
9 against the tobacco industry?

10 A. As a concept, yes.

11 Q. Okay. Let me ask you to take a
12 look at Page 1 of your expert report. Is
13 everything on Page 1 correct?

14 A. Assuming it hasn't changed since
15 the last time I looked at it or since I
16 wrote it, I would have to say yes. You want
17 me to --

18 Q. No. I assume you wrote it

19 and --

20 A. It's correct.

21 MR. WESTBROOK:

22 I think he's asking if you
23 found anything in the last couple of
24 weeks that makes it incorrect?

25 THE WITNESS:

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1 No. No, sir, I have not.

2 MR. DUNCAN:

3 Thanks, Counsel.

4 MR. WESTBROOK:

5 You don't have to reread the
6 whole thing for the camera.

7 MR. DUNCAN:

8 Thanks, Counsel.

9 EXAMINATION BY MR. DUNCAN:

10 Q. Let me go look to the end of the
11 first -- second paragraph where you mention
12 that you compete for grants. How much money
13 do you receive every year in grant money?

14 A. About -- in direct costs, that
15 means to my laboratory?

16 Q. Correct.

17 A. Because the university gets a
18 separate indirect cost. About \$375,000 per
19 year.

20 Q. And who funds those? Can you

21 give me some of the entities that have
22 funded in the past?
23 A. The National Institute of
24 Environmental Health Sciences, the National
25 Heart, Lung and Blood Institute, the

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1 National Institute of Allergy and Infectious
2 Disease.

3 Q. Okay. Doctor, you've previously
4 worked for the federal government; is that
5 correct?

6 A. Right.

7 Q. Has -- in your opinion, has your
8 prior work there influenced your ability to
9 be able to get that grant money?

10 A. Not at all. I wish that were
11 the case, but that's not the case. In fact,
12 most people that come out of the federal
13 government don't -- aren't really trained or
14 very good at getting money through the
15 competitive process.

16 Q. Okay. And I -- perhaps I detect
17 a little bit of pride in that last sentence
18 that only 15 to 20 percent of grant
19 proposals submitted to the NIH are funded,
20 and yours are some of those that are. Tell
21 me, what is it you do, without giving away
22 any trade secrets, to allow you to obtain
23 grants where others fail.

24 A. Well, there are a couple of
25 things involved. One is the nature of the

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1 science and the quality of the science. I
2 mean, what are you doing that is -- that is
3 extending the knowledge that we currently
4 don't have. That's the first thing. The
5 review bodies of which I serve look at the
6 innovative nature and the likelihood that
7 new knowledge that is going to benefit
8 mankind will develop from these grants.
9 That's what the National Institutes of
10 Health is all about. So, that's the first
11 thing.

12 Second thing is you have to
13 write in a way that is understandable and so
14 that your message will be carried forth.
15 Those are the two major things, and if you
16 can do those things, if you have both of
17 those things in your grasp, then, you should
18 be able to compete.

19 Q. Okay. About what percent of
20 your time is spent in the both applying for
21 and administering grants?

22 A. It's very variable because it --
23 about two or three months prior to a due
24 date, it can be 75 percent of my time. In
25 the interim, it could be 20 percent. So,

1 it's really variable, depending upon the
2 time of the year.

3 Q. Okay. And how about for
4 administering, doing the administrative
5 part, administering the money and that sort
6 of thing?

7 A. That's not a large task because
8 we have offices and support people
9 specifically set up to do that kind of work.

10 Q. Do you use graduate students or
11 other assistants to help you draft your
12 proposals?

13 A. No.

14 Q. Okay. And do you get ideas for
15 your research from others, or is this just
16 things that you think of?

17 A. Well, we have a team. We have a
18 research team.

19 Q. Uh-huh.

20 A. We have people who do the
21 experiments and people who think about them
22 and people who write about them. We all do
23 these things together. That's why we're
24 coauthors on each other's papers. We --
25 some people in the group write their own

1 grants, some we write together. I mean,
2 it's a combination of all these things. I
3 don't work as an island, for sure.

4 Q. How many people on your team, as
5 you describe it?

6 A. About 20.

7 Q. Okay. Do they report to you?

8 A. Depends on their level. I have
9 recruited some assistant professors that --
10 junior professors over the last few years.
11 When they first arrived, they reported to
12 me, but they don't anymore. I mean, they've
13 developed their own programs. That was the
14 whole idea of their coming to Tulane. So --
15 but if they're graduate students or
16 postdoctoral fellows who work for me, then,
17 they do report to me.

18 Q. You mentioned you had gotten
19 some grants to -- did I understand you
20 right -- to study allergies?

21 A. No. That's -- the National
22 Institute of Allergy and Infectious Disease
23 actually funds some of our work on models of
24 toxicology -- toxicology models using
25 genetically defined mice.

1 Q. Can you explain that in a little

2 more detail?

3 A. Right. They put out what's
4 called an RFA, that means request for
5 application, and they were looking for model
6 systems to better define agents that induce
7 inflammation. So, it's Institute of Allergy
8 and Infectious Disease, and a lot of that is
9 related to inflammation. And, so, we
10 were -- we are developing transgenic and
11 knockout mice that are genetically defined
12 and we competed successfully for one of
13 their grants.

14 Q. Okay. Doctor, I earlier asked
15 you if you have smoked, and you responded.
16 I guess I have to ask you the other
17 question: Have you ever been exposed to
18 asbestos?

19 A. Not that I know of. I mean, not
20 in an occupational setting, certainly.

21 Q. Well, do you work with it in
22 your laboratory?

23 A. Yes, but it's always under
24 strict control. I mean, it's not in the
25 laboratory. It's in a special chamber where

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1 only the animals get exposed, not the
2 people.

3 Q. Is it run by -- is it automated,
4 or does someone actually have to, at some

5 point, handle the asbestos?

6 A. There is a point at which

7 someone has to handle the asbestos with

8 appropriate protective clothing and in glove

9 boxes so that the individual is not exposed

10 to any air with asbestos in it.

11 Q. And who does that handling?

12 A. This is a trained industrial

13 hygienist.

14 Q. Okay. So -- and you've never

15 handled the asbestos? In all your research,

16 you've never had to handle it?

17 A. I have handled asbestos for in

18 vitro studies in a hood, but not -- I've not

19 handled it for the exposure inhalation

20 settings in which we've used animals.

21 Q. Okay. Do you think handling --

22 I mean, when you described a glove box, it

23 sounds like the way someone would handle

24 plutonium or something. Do you think that

25 that's an overprecaution?

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1 A. Well, I'm sure it is. You just

2 be as cautious as you can when you do these

3 things. You just don't want to be exposed.

4 Would one or two exposures, by accident, as

5 we're using, cause disease? Probably not.

6 But, I mean, you just take precaution every

7 time.

8 Q. Right. Do you have an
9 opinion -- I mean, isn't there ambient
10 asbestos even as we sit here even in the
11 atmosphere that we're breathing in?

12 A. A few fibers, sure.

13 Q. Okay. Dr. Brody, maybe this
14 would be a good time to ask you: Do you
15 have an opinion as to whether or not there
16 is a threshold for disease causation with
17 asbestos?

18 A. Well, it depends on the
19 disease. There is a threshold for
20 asbestosis. There is a threshold, probably,
21 for lung cancer. I don't know what those
22 are. I don't know if they've been well
23 defined, but we all have asbestos in our
24 lungs and I don't expect us to get
25 asbestosis and lung cancer, so -- if we

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1 don't smoke, so, you know, there must be
2 some kind of threshold for most of us. But
3 mesothelioma doesn't seem to follow that
4 curve. There are people who are highly
5 susceptible to getting the cancer
6 mesothelioma, and no safe level has ever
7 been demonstrated for mesothelioma.

8 Q. Is asbestos, in your view, the
9 only cause of mesothelioma?

10 A. It's the only environmental
11 cause, yes.
12 Q. Is that different from the only
13 cause?
14 A. Well, I mean, I can -- if you
15 have chest radiation at high levels, you can
16 get a mesothelioma.
17 Q. Okay.
18 A. If you're exposed to erionite in
19 Turkey, you can get mesothelioma. But in
20 our environment in the United States, it's
21 the only known cause, inhalation cause.
22 Q. Are there idiopathic causes?
23 A. Well, any cancer can be
24 idiopathic, I mean.
25 Q. Okay.

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1 A. Yes.
2 Q. Okay. Let me -- let me ask you
3 to go back to your -- to your reliance
4 materials. How did you come up with that
5 list of 14? And I take it there are -- let
6 me count them up real quickly here -- 20.
7 There's six more that I was given this
8 morning. How did you come up with that
9 list?
10 A. Well, these are articles that I
11 would use to discuss the issues of, as you

12 asked me earlier, what I would testify to,
13 and I would use these articles to talk about
14 normal anatomy of the lung, where asbestos
15 goes, how it interacts with cells, how
16 cigarette smoke and asbestos might synergize
17 to cause cancer, and the mechanisms through
18 which cigarette smoke and asbestos cause
19 cancer.

20 Q. Okay. Is it safe to say that
21 this and the other six that, again, I was
22 given this morning, would you say that you
23 rely on those as authoritative texts?

24 A. Yes.

25 Q. Authoritative. Do you have any

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1 exceptions to that? In other words, are
2 there parts of these that you would not
3 accept or that you read just to get the
4 other view?

5 A. I'm not sure how to answer
6 that. I mean, is there everything that's
7 said in every one of these that I rely on or
8 I believe is absolutely true? I can't tell
9 you that. I'd have to go through each one.
10 I mean, in general, I rely on these. I
11 think they are authoritative and they -- and
12 they make the points I want to make, but is
13 there something in any one of these that
14 might -- that I might reject? Sure, that's

15 possible.

16 Q. Okay. Then, I have to ask you:

17 Have you read all of your references here?

18 A. I've read every one of them,
19 now, but my statement still stands because I
20 don't remember every word of every one of
21 these.

22 Q. Okay. And the reason, I
23 suppose, that it's on here then is to
24 support some of your opinions?

25 A. That's right.

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1 Q. Okay.

2 MR. DUNCAN:

3 Tell you what. It's getting
4 to be about 11:35. Why don't we take
5 a break for lunch and then come back
6 in about an hour. I understand
7 there's a wonderful food court
8 downstairs.

9 MR. WESTBROOK:

10 Do we need that much time?

11 MR. DUNCAN:

12 Or we can do 45 minutes if you
13 want.

14 THE WITNESS:

15 It's up to you guys.

16 MR. DUNCAN:

17 We can go off the record.
18 THE VIDEOGRAPHER:
19 Off the record, 11:36.
20 (Whereupon, a discussion was
21 held off the record.)
22 THE VIDEOGRAPHER:
23 Returning to record. It is
24 12:26. This is the start of Tape 2.
25 EXAMINATION BY MR. DUNCAN:

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1 Q. Doctor, a couple of more
2 questions for you on the expert report
3 drafting. Now, I know that you told me at
4 the beginning of this, I think Counsel
5 represented that you had received -- as well
6 had received a box of documents which you
7 didn't look at, and upon which you do not
8 intend to rely. Was anything told to you
9 about incorporating any of that into your
10 expert report?
11 A. No.
12 Q. Okay. Well, when were you told
13 you were going to get these documents?
14 A. Months ago.
15 Q. And they just arrived?
16 A. They arrived, some, a couple of
17 months; some, a month.
18 Q. Okay. And you were never asked
19 to put any information about those documents

20 into an expert report or to have any
21 comments on those?
22 A. That's right.
23 Q. And did you know why you
24 received them? Were you told why you were
25 going to get them?

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1 A. Not really. I mean, these are
2 documents -- I really don't know what they
3 are. I mean, I suppose if I had gone
4 through them all and had some opinions about
5 them that the plaintiffs' counsel might want
6 to ask me about them or have me use them,
7 but I didn't do that because I just don't
8 have time to do that, and here we are.

9 Q. Okay. What preparation did you
10 do for this deposition?

11 A. Mr. Westbrook and I had a chat
12 yesterday afternoon, but nothing specific,
13 really. Just sort of the nature of my
14 testimony and what he thought you might ask
15 me.

16 Q. Okay. Anything other than those
17 administrative things? Anything
18 substantive?

19 A. Other than these papers, I
20 mean -- I had some additional papers in
21 mind, and he facilitated their recovery. I

22 mean, I couldn't find a couple of them that
23 I wanted to rely on, and he had them pulled
24 from his files, Ness, Motley. That's why
25 you can see the Ness, Motley.

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1 Q. How long did you meet with Mr.
2 Westbrook?

3 A. Two hours.

4 Q. Okay. Yesterday afternoon?

5 A. Correct.

6 Q. Okay. Did you go over your
7 expert report with Mr. Westbrook?

8 A. Not -- no, not really, just --

9 Q. And was there anything that you
10 were advised to stay away from or not
11 discuss at this deposition?

12 A. No.

13 Q. Okay. And did you discuss this
14 deposition with Mr. Westbrook at the lunch
15 break?

16 A. We talked about some of the
17 things that had gone on this morning, yes.

18 Q. What did you talk about?

19 A. The issue of the American
20 Thoracic Society points that were raised,
21 sort of reiterated what we talked about.
22 There's nothing -- I wouldn't say anything
23 really substantive or new. That was really
24 the only thing about the depo we talked

25 about.

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1 Q. Okay. I had asked you some
2 questions before about what you knew about
3 this case. Have you received any
4 case-specific information, such as the
5 pleadings in the case?

6 A. No.

7 Q. Have you asked to see those?

8 A. No.

9 Q. Okay. Is there anything, as far
10 as the legal case goes, that you've asked to
11 see?

12 A. No.

13 Q. Okay. Now, in drafting this
14 expert report, which you told me you did
15 with your own fingers on your own keyboard,
16 I take it that the general outline of this
17 was discussed at some point, you told me,
18 with -- with Counsel, Mr. Kazan, or --

19 A. Well, it was really discussed
20 after. I mean, I did this, and this is an
21 outline that I developed --

22 Q. Uh-huh.

23 A. -- that I thought would be
24 useful, and that's where it came from.

25 Q. Right. And what I -- was there

1 some discussion before you wrote it as to
2 what sort of things should be in there?

3 A. Yes.

4 Q. Okay. And what were you told
5 should be in there?

6 A. I don't know that I was told,
7 really, what should be in there other than
8 discussing with Mr. Kazan what kinds of
9 testimony I would be -- that I would
10 deliver, and that's what's -- what's in
11 here, and he asked me to put a personal
12 statement to cover it, what my current --
13 what I -- my current position and education
14 and that sort of thing.

15 Q. I believe you testified before
16 that your legal testimony fees and your work
17 with law firms supplies you ten to 20
18 percent of your annual income. Is that
19 still true, or is that -- has that
20 percentage increased?

21 A. It's increased over the last few
22 years.

23 Q. So, what percentage of your
24 annual income would you say your tobacco
25 revenues -- or, I'm sorry -- asbestos and

1 other testimony revenues are?

2 A. It's probably closer to 30

3 percent.

4 Q. Thirty percent?

5 A. Right.

6 Q. Okay. I see that your

7 consulting rate is \$350 per hour. Has that

8 changed recently?

9 A. It changed recently to \$350 per

10 hour.

11 Q. And what was it before that?

12 A. 300.

13 Q. Okay. And when did you change

14 that?

15 A. About a year ago.

16 Q. And I take it that that's the

17 same rate you're charging here today for

18 this time?

19 A. That's correct. Actually,

20 probably a year and a half, because up until

21 a year and a half, it was 300.

22 Q. Okay. Doctor, if you wouldn't

23 mind picking up Defense Exhibit Number 3

24 there, and turning to the second page, and

25 I'd like you to quickly glance over your

1 Summary of Testimony. I'd like to ask you

2 some questions about that.

3 A. Okay.

4 Q. Now, in relation to that

5 paragraph, I'd like to ask you: What is

6 your understanding of the diseases for which

7 the trust is suing for compensation that you

8 told me was your understanding of the case?

9 Which diseases are being alleged in that

10 complaint? Do you have any idea?

11 A. I'm not really sure.

12 Q. Okay.

13 A. I wouldn't want to be wrong

14 about that, so, I'm not sure.

15 Q. Okay.

16 A. I mean, I -- asbestosis and lung

17 cancer come to mind, but that -- I'm not

18 claiming that I really know.

19 Q. Okay. Well, as part of your

20 expert report, you weren't told what

21 diseases to put in here or to talk about?

22 A. Not really. I mean, I may have,

23 but these are the diseases that I would --

24 that I would describe in the kind of

25 testimony that I give. I wasn't trying to

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1 limit my testimony to any specific diseases.

2 Q. All right. Well, let's address

3 the -- this sort of seriatim. The second or

4 third full sentence:

5 "He will explain how asbestos

6 fibers injure lung cells and cause
7 scar tissue to develop as asbestosis,
8 and how cigarette smoke damages the
9 cells that are involved in the
10 formation of emphysema and chronic
11 bronchitis."

12 Doctor, is it your opinion that
13 emphysema and chronic bronchitis are caused
14 by inhalation of asbestos?

15 A. No.

16 Q. Is it your opinion that those
17 diseases are caused or contributed to by the
18 inhalation of tobacco smoke?

19 A. Yes.

20 Q. Okay. Doctor, do you consider
21 yourself to be an expert in the pathogenesis
22 of emphysema?

23 A. Well, I'm an expert in the sense
24 that I study and understand the literature
25 on the mechanisms of emphysema development.

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1 That's not my research focus, but I am an
2 expert in that area, yes. I can explain how
3 that happens, and I'm -- and I understand
4 the pathology and pathobiology of the
5 disease.

6 Q. You do.

7 A. Yes.

8 Q. Have you published on it,

9 Doctor?

10 A. I have not published
11 specifically because that's not my focus of
12 research. I mean, there are a lot of things
13 that I -- that I understand very well that I
14 don't publish on, and emphysema is one of
15 them.

16 Q. Okay. Just a moment.

17 So, you understand emphysema
18 well and feel that you're an expert in that?

19 A. As expert as a person can be who
20 doesn't do that research themselves in the
21 laboratory. I mean, there are different
22 levels of expertise.

23 Q. Okay.

24 A. And my primary expertise is in
25 how asbestos injures the lung, and I speak

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1 for that as having done the work myself.
2 The next level is someone who is -- who
3 understands a disease process because they
4 are in that sphere of influence and they
5 are -- they have colleagues and scientific
6 colleagues who do that work and they study
7 the literature carefully enough to
8 understand it well enough to be an expert.

9 Q. Who, in your view, is more of an
10 expert in emphysema than you are?

11 A. Oh, there are many people. I
12 mean --
13 Q. Not by name. By -- let's
14 just -- by profession or by --
15 A. No, profession is not the
16 issue. I mean, there are plenty people who
17 have the same kind of profession that I have
18 who do the kind of work I do at the level I
19 do with asbestos who are -- who do -- who
20 study emphysema.
21 Q. Correct. How about by -- by
22 specialty may be a better way to put it?
23 Are there any specialists who would know, be
24 more expert in emphysema and its
25 pathogenesis than you are? For instance,

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1 would a pulmonologist?
2 A. No. No. The issue is that if I
3 chose to study emphysema at the level that I
4 do asbestos, then -- then, all my answers
5 would be -- would have been yes, yes, yes.
6 Someone who does what I do in the kind of
7 job that I have, studying emphysema, is more
8 expert than I am in the field. Now, if a
9 person -- if you're talking about the
10 clinical field, clinical sphere, measuring
11 emphysema by pulmonary function testing,
12 then, sure, you're talking about a

13 pulmonologist.

14 Q. Doctor, what is your definition

15 of emphysema?

16 A. Well, emphysema is a breakdown

17 of the alveolar walls producing enlarged air

18 spaces, reduced surface area for gas

19 exchange, and trapping of carbon dioxide.

20 Q. Okay. And are you familiar with

21 the expression "COPD"?

22 A. Sure.

23 Q. Okay. And is emphysema a form

24 of COPD?

25 A. It's one of the components of

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1 COPD, yes.

2 Q. What are the other components of

3 COPD?

4 A. Well, it could be chronic

5 bronchitis. Basically, chronic bronchitis

6 and emphysema are the two major components.

7 Some people think of asthma as chronic

8 obstructive pulmonary disease because it has

9 a lot of the same symptoms, but it depends

10 on the definition that you're working with.

11 Q. Okay. Are you familiar with

12 something called the "Dutch hypothesis"?

13 A. The Dutch hypothesis?

14 Q. Dutch.

15 A. No.

16 Q. Okay. As it relates to COPD?
17 A. No.
18 Q. Okay. And you said that you are
19 an expert, although, I understand, not as
20 expert as you are in asbestos, but
21 nonetheless an expert on the causation of
22 emphysema? Did I understand you correctly?
23 A. Yes. I mean, I don't think you
24 need to know too much to understand the
25 causes. I mean, there aren't a lot of

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1 different causes of emphysema.
2 Q. What are some of the causes of
3 emphysema?
4 A. Cigarette smoking, some toxic
5 gases can cause emphysema. That's -- that's
6 about it. I mean, there are some genetic
7 defects, genetic defects in the genes that
8 produce alphas₁-antitrypsin our natural
9 defense mechanisms against emphysema.
10 That's certainly a cause.
11 Q. Okay. Now, is emphysema a
12 clinical diagnosis when referring to
13 emphysema in people?
14 A. It is a clinical diagnosis.
15 It's also a pathological diagnosis.
16 Q. What is the -- what is the best
17 way or, if there is a best way, to determine

18 pathologically whether or not someone has
19 emphysema?
20 A. Well, by definition, you need to
21 have tissue that you can look at under a
22 microscope.
23 Q. How much tissue?
24 A. Well, you don't need a lot. If
25 you had a small amount of parenchyma, gas

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1 exchange area, you could say whether or not
2 there was emphysema in that piece. You'd
3 certainly need other information to know how
4 widespread the disease is.
5 Q. Well, that brings up my next
6 question. Can you assume from looking at a
7 pathology specimen from the parenchyma of
8 the lung, and if you see broken-down
9 alveolar septa, does that tell you that,
10 first of all, in that one piece, does that
11 tell you that there is emphysema present?
12 A. Okay. This is not an easy
13 question and I'm sure you know that. The
14 issue is that in a piece of lung tissue,
15 assuming that it was collected normally and
16 correctly, you wouldn't expect to find
17 broken alveolar walls. So, if you see -- if
18 you have a small piece of tissue and you see
19 evidence of breakdown of alveolar walls
20 and -- and you can say that in that tissue

21 that you're looking at, there's emphysema.
22 Now, it doesn't tell you about the rest of
23 the lung, but if you had additional
24 information, like clinical information or
25 x-ray findings, you could then make

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1 correlations with what you see as to what's
2 going on in the rest of the lung. If all
3 you have is that one piece, you could draw a
4 conclusion that there was emphysema, but you
5 wouldn't be able to say how widespread it
6 is.

7 Q. Okay. And that, I guess, is my
8 question. Doctor, is emphysema -- is it
9 possible for a person to have focal
10 emphysema?

11 A. It is, sure.

12 Q. Okay. And, so, emphysema, then,
13 is not a clinical condition, but it is
14 merely the condition, if I understand you
15 right, of having enlarged or destroyed
16 alveolar septa that reduces your gas
17 exchange area in a particular area?

18 A. Well, you preface that by saying
19 it's not something. I didn't say it wasn't
20 something. I mean, emphysema can be a
21 clinical diagnosis based on x-rays,
22 pulmonary function studies, a whole variety

23 of things. You can have a clinical
24 diagnosis of emphysema. Then, you can have
25 also a pathological diagnosis based upon

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1 what you see in the tissue.

2 Q. I see. I guess what I'm asking
3 is: Is -- by itself, are focal
4 emphysematous changes the equivalent of a
5 clinical diagnosis of emphysema?

6 A. Not necessarily. I mean, you
7 can have a few focal spots of emphysema and
8 not know it, or have it show up in a
9 clinical picture.

10 Q. I see. If you saw a lung and
11 you knew that this person were exposed to
12 cigarette smoke and had smoked for a number
13 of years, a sufficient, in your view, pack
14 history, which we'll go into in a minute,
15 and you saw what you would describe as focal
16 emphysematous changes, would you be
17 comfortable in saying that that patient had
18 emphysema?

19 A. If I saw focal emphysema in --
20 and if I had enough tissue to know that it
21 wasn't just that one spot, yes, I think so.

22 Q. I'm sorry.

23 A. So, you're asking me, the person
24 smoked cigarettes and I see evidence of
25 focal emphysema. Now, that means more than

1 just one spot. There are foci of
2 emphysema --

3 Q. Correct.

4 A. -- around, and you're asking me
5 is that caused by cigarette smoke, in my
6 opinion?

7 Q. No, that's not what I asked
8 you.

9 A. Okay.

10 Q. Would that be enough, in your
11 view, to say that the individual whose lung
12 the sample was taken from had emphysema?

13 A. Yes, I think so. You might have
14 to qualify it with the extent, but it's
15 emphysema.

16 Q. Okay. So, any alveolar
17 destruction of the alveolar septa and
18 resulting in increased or enlarged air
19 spaces is emphysema, regardless of the
20 cause?

21 A. Pathologists are famous for
22 having qualifiers. So, "early," "focal" is
23 emphysema. It just -- it's emphysema. It's
24 just the degree.

25 Q. If you were looking at such a

1 sample where you saw areas of focal
2 emphysematous changes, would you care about
3 the person's age in determining whether or
4 not that were emphysema?

5 A. Yes. As a person gets older,
6 you would be more likely to see changes like
7 that, yes.

8 Q. And what causes those changes in
9 the aging?

10 A. I don't think we know. I mean,
11 I think there are some changes that can
12 occur spontaneously in older people. They
13 don't typically have a pattern. If the
14 person's a nonsmoker and you see some focal
15 emphysematous changes in an older person,
16 they're typically without a pattern related
17 to -- to inhalation of smoke, so, you'd have
18 to be careful about what you're -- what
19 you're calling focal emphysema.

20 Q. What kind of pattern are you
21 looking for in a smoker?

22 A. Well, we see the central lobular
23 emphysema typically in a smoker, where the
24 emphysematous lesions develop at the ends of
25 the small airways.

1 Q. Okay. Are they equivalent to

2 you, Doctor, the ways to look for emphysema
3 pathologically, whether or not you take a
4 small sample of the lung or whether or not
5 you look at the entire lung?

6 A. I'm not sure I understand.

7 Q. Are they equivalent to you? In
8 other words, is it just as useful to you, in
9 deciding whether or not a person had
10 emphysema, whether you take a small biopsy
11 from the parenchyma of the lung versus
12 inflating and fixing the entire lung and
13 looking at it grossly?

14 A. It's always more -- it's always
15 easier to make an accurate diagnosis with
16 the more tissue that you have.

17 Q. Okay. Now, I understand this
18 has been gone over in depositions with you
19 before and today. You are not a medical
20 doctor; you are a Ph.D. pathologist, or
21 pathology researcher?

22 A. Right.

23 Q. You don't make clinical
24 diagnoses, do you?

25 A. Right.

1 Q. Okay. Have you ever assisted in
2 the clinical diagnosis of a patient other
3 than to do a bedside consult on pathology?

4 Have you ever assisted in, for instance,
5 diagnosing what the physician's found to be
6 a troublesome case?

7 A. Only as we've talked about
8 before in the extent where I might give my
9 opinion as to what I see going on in the
10 lung, but we've been through this, so, that
11 hasn't changed since then.

12 Q. Okay. And have you ever been
13 asked by a pulmonologist or other physician
14 whether or not a person had emphysema? Have
15 you been ever asked to look at lung tissue
16 to decide whether or not emphysema was
17 present?

18 A. Yes.

19 Q. Okay. And under what
20 circumstances was that done?

21 A. Well, these are tissues that --
22 that maybe worked up for cases, pathology
23 reports, for example, where there may be
24 some series of case studies that the tissue
25 was going to be digested and things like

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1 this, and I would give my opinion as to what
2 was in that tissue. But, I mean, they are
3 not for establishing a diagnosis that's
4 going to be submitted in that person's
5 medical record.

6 Q. Or for their care?

7 A. That's correct.

8 Q. Okay. Do you ever opine on

9 pathology specimens as a result of a

10 postmortem that's been done?

11 A. I've done that, yes.

12 Q. Okay. Is that a part of your

13 work today?

14 A. No, not typically. I was on the

15 medical examiner's autopsy call at

16 University of Vermont for several years and

17 did that, and I've -- there are a number of

18 autopsies carried out at Tulane, and I've

19 looked at tissues, again, under the same

20 kinds of circumstances that we're talking

21 about here.

22 Q. Okay. Doctor, are you -- do you

23 consider yourself to be an expert in the

24 mechanisms for the disease process of

25 emphysema?

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1 A. I thought we went through that.

2 I would say yes, with the understanding that

3 this is not my area of work that I publish

4 in.

5 Q. Okay. All right. Specifically,

6 I'm asking you about mechanisms.

7 A. Yes.

8 Q. Okay. And you're an expert in

9 the mechanism for the production of COPD,
10 specifically emphysema right now?
11 A. Yes.
12 Q. Okay. Well, could you go
13 through that mechanism with me and tell me
14 how emphysema is produced?
15 A. What we understand is that
16 there's an imbalance in the -- in the
17 production of extracellular matrix,
18 particularly elastin, which is a gene
19 product that is found throughout the walls
20 of the alveolar spaces; that there are
21 enzymes called elastase that are produced in
22 overabundance; that the appropriate blocking
23 agents, like alpha1-antitrypsin, for
24 example, are reduced. So, this is all part
25 of the ongoing process. There may be at the

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1 same time the buildup of collagen in some of
2 the broken-down walls so that you actually
3 get some scarring in association with the
4 emphysema, but, fundamentally, it's an
5 imbalance in the elastin -- in the elastin
6 protein and in the elastase degrading --
7 elastase, which acts as an enzyme that
8 degrades elastin.
9 Q. Okay. And what causes, Doctor,
10 the overproduction?
11 A. There are a number of white

12 blood cells, particularly, macrophages and
13 neutrophils, that produce elastase. They
14 produce elastase on the alveolar surfaces,
15 they produce elastase in the alveolar walls,
16 and those enzymes then contribute to the
17 breakdown of the protein elastin.

18 Q. Okay. And why -- why are these
19 enzymes produced, in response to what?

20 A. Well, the best example is
21 cigarette smoke. When a person smokes
22 cigarettes, they have increased numbers of
23 these white blood cells, macrophages and
24 neutrophils, and those white blood cells are
25 called to fore into the alveolar spaces in

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1 attempt to clean up the debris that's
2 inhaled during cigarette use and also in
3 attempts to remodel the alveolar walls as
4 they break down during the process of
5 emphysema.

6 Q. Okay. And I think we mentioned
7 that -- I asked you if you knew if there
8 were any other causes, and I think you
9 mentioned certain toxic gases.

10 A. Right.

11 Q. Anything else that will cause
12 that reaction in the lung?

13 A. I think those are the two major

14 causes that I know of.

15 Q. Other than having a genetic
16 deficit of alphas-antitrypsin?

17 A. Right. I don't know of any
18 others.

19 Q. Okay. Doctor, upon what do you
20 specifically rely for your opinion about the
21 cause and the mechanism for emphysema?

22 A. Well, there are a series of
23 papers on emphysema. I mean, you can find
24 everything from the medical texts. I don't
25 know if I specifically referenced any

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1 that -- which you could look at, but --
2 that -- the book by Wehner, W-E-H-N-E-R, I
3 think, had some papers on cigarette smoke.
4 There's an investigator at Washington
5 University, his name is Robert Senior,
6 S-E-N-I-O-R, and Dr. Senior has done some of
7 the basic studies on elastase production,
8 elastase balance in the lung. I rely on his
9 work for the fundamental mechanisms. But, I
10 mean, you can look at any of the pathology
11 textbooks, Robert and Angel, or Samuel --
12 Sam Hammar's textbook on the pathology of
13 the lung, and they go through this scenario.

14 Q. I see. Is this a -- Doctor,
15 would you classify this as a theory, or, in
16 your mind, have all the steps been shown and

17 the mechanism proved and we're done with
18 studding the cause of COPD -- or emphysema?
19 A. Well, I think it's the case
20 where the enzyme balance has been
21 established. I don't think that's theory
22 any longer. I think that's clear. The
23 mechanisms through which oxidant gases or
24 which the components of cigarette smoke
25 actually induce the genetic expression of

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1 elastase, there's work to be done there,
2 certainly. So, whenever you ask is there
3 theory and what's known, there are always
4 some parts that are known and others that
5 have yet to be established.
6 Q. Okay. Are there any other
7 theories on the cause of emphysema, the
8 mechanisms for the cause of emphysema, or is
9 this pretty much it?
10 A. I don't know of any others that
11 I would think are credible that have good
12 enough -- I mean, there may be others. I
13 don't know what they are.
14 Q. Okay.
15 A. But I don't know that there are
16 any others that right now have the -- the
17 backup and the data that would suggest that
18 they're -- that they're worth spending a lot

19 of time on.

20 Q. Doctor, about what percentage of
21 smokers, regular smokers, develop emphysema?

22 A. I'm not really sure. I think
23 it's something around 20 percent. I'm not
24 sure.

25 Q. Okay. And in your view, then, I

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1 guess, it's not your view that most smokers,
2 even regular smokers, suffer from emphysema;
3 is that correct?

4 A. Well, I think "suffer" is a good
5 point. How many people actually end up in
6 the clinic, I'm not sure, because of
7 emphysema. I think it's a -- on the lower
8 side, maybe 20, 30 percent. I really don't
9 know. Now, how many regular smokers get
10 some emphysema that takes them off the
11 curve -- you know, if you look at -- at the
12 people whose lung functions are affected by
13 cigarette smoke versus the people who are
14 significantly affected and come to the
15 clinic with a disease like emphysema,
16 there's quite a bit of difference, and those
17 people who -- whose lung function is
18 affected such that they lose some of their
19 vital capacity and can't play ball as long
20 as they would like to because they smoke,
21 some of that, probably due to emphysema or

22 chronic bronchitis, but I don't know those
23 numbers. I mean, those are other people
24 that are going to tell you those numbers.
25 Q. That would be speculative,

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1 wouldn't it, Doctor, for you to opine on
2 that?
3 A. I wouldn't give numbers. That's
4 correct.
5 Q. Okay. So, it's safe to say
6 that -- it's safe to say that at any trial
7 of this matter, you would not be opining
8 that any one of the claimants suffered from
9 emphysema, or any particular percentage of
10 them had emphysema or could be diagnosed
11 with emphysema; is that right?
12 A. Right. Right. I wouldn't give
13 the percentage. I mean, if someone said to
14 me these people have emphysema, tell us how
15 emphysema developed in these people, that's
16 what I would do. I'm not going to tell you
17 who has it and who doesn't or how many have
18 it or what percentage.
19 Q. Right. Or what percentage of
20 smokers have it and that sort of thing?
21 A. That's right.
22 Q. Does emphysema occur in
23 nonsmokers, Doctor?

24 A. Rarely. I mean, if we're
25 talking about no genetic defect and we're

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1 talking about not exposure to any other kind
2 of toxic gas --

3 Q. Well, Doctor, I didn't want to
4 assume the question away. I was just
5 asking, do nonsmokers get emphysema?

6 A. And I'm saying, if you don't
7 have a genetic defect and you don't have
8 toxic gases, I would say it would be very
9 rare. I don't know under what circumstances
10 I could say yes.

11 Q. How about under the circumstance
12 that they were exposed to a toxic gas?

13 A. Well, yeah, I suppose they could
14 then.

15 Q. Oh, okay. Or to the
16 circumstance where they had a genetic
17 defect.

18 A. Right.

19 Q. Okay. Maybe this would be a
20 good time to ask you your -- your -- what
21 you will testify and what you won't to. As
22 far as pathology goes, I take it you'll only
23 talk about or offer opinions as it relates
24 to research pathology and not any sort of
25 clinical pathology, such as diagnosis of

1 disease?

2 A. I'm not going to testify about
3 the specific diagnosis of a disease, but if
4 you would ask me how I could make a -- how a
5 diagnosis at the pathological level could be
6 made, I mean, what does it look like, I
7 could do that.

8 Q. And would you think that a
9 physician pathologist would be in a better
10 position to do that?

11 A. Depends on the question. If
12 you're asking me what are your diagnostic
13 criteria that you write down in your report
14 that goes into the medical record, then,
15 obviously. If you ask the question, what
16 are the changes that are going on in this
17 person's lung that we can see here that add
18 to this diagnosis of emphysema, I can do
19 that.

20 Q. Okay. And a physician
21 pathologist would not be the best person to
22 do that?

23 A. No. It's not a question of
24 who's best and who isn't. It's a question
25 of what it is you want from the person. I

1 mean, as an M.D. pathologist or as a
2 research pathologist, we can both look in
3 the microscope and see the same thing. So,
4 it just depends on the question that you're
5 asking.

6 Q. Okay. Well, I'm trying to find
7 out levels of expertise. I suppose a
8 graduate student could look under a
9 microscope and tell you what he or she saw,
10 but the issue is who would be best to talk
11 about the issues associated with seeing
12 that, and as far as disease diagnosis, that
13 would be a clinical -- a medical doctor
14 who's trained in pathology, right?

15 A. Sure.

16 Q. Okay.

17 A. To make that diagnosis, write
18 the report and put it in the medical record,
19 you would have to be an M.D. to do that, and
20 should be -- and, obviously, should be an
21 M.D. to do that. Now, if you want to know
22 what the tissue -- what changes in the
23 tissue have taken place so that that doctor
24 can see those and write them down and put
25 them in a medical record, I mean, I know

1 what those changes are and I can describe
2 them to you and I can do that. I don't take

3 the next step and put them in the medical
4 record.

5 Q. Why is that, Doctor? Why are
6 you not allowed to take that extra step and
7 put it in the diagnosis?

8 A. Well, it's a question of
9 professional certification.

10 Q. All right. That's not just a
11 piece of paper. I mean, they do have extra
12 training, don't they?

13 A. Of course.

14 Q. Okay. Doctor, you're not going
15 to testify as an expert in pulmonology, are
16 you?

17 A. I am not.

18 Q. Okay. So, better left to a
19 pulmonologist, I take it?

20 A. Sure.

21 Q. Okay. Oncology, you're not an
22 expert in that, you won't testify as an
23 oncologist or to what an oncologist would
24 testify to?

25 A. So, I'm assuming we're talking

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1 about now the clinical pictures. I mean,
2 oncology is the study of cancer.

3 Q. Correct.

4 A. Okay. So, if we're talking

5 about making a diagnosis, looking at a
6 patient, of course, I'm not going to do
7 that.

8 Q. Okay.

9 A. If we're talking about oncology
10 as it relates to mechanisms of cancer, then,
11 I'll talk about that.

12 Q. Okay. And do you feel that you
13 are an expert in the mechanisms of cancer?

14 A. Yes.

15 Q. Okay. Doctor, do you -- I guess
16 we can address it later. Is there someplace
17 in your report, do you think, that fairly
18 lays out the idea that you are going to
19 testify as to the mechanisms of cancer
20 development?

21 A. Well, I think the last
22 paragraph, Number 9, does that.

23 Q. Okay. And we'll get to Number 9
24 in a minute. But that's where you think it
25 is? That's where you think your disclosure

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1 is for mechanism?

2 A. Yes.

3 Q. Okay. Doctor, I think you
4 already alluded to it in response to another
5 question, but you're not an epidemiologist?

6 A. Right.

7 Q. And you won't be testifying

8 about epidemiologic principles, then, I take
9 it?

10 A. Right.

11 Q. Okay. How about risk
12 assessment, do you feel yourself -- do you
13 feel that you're an expert in risk
14 assessment?

15 A. No. I think that's an
16 epidemiologic issue.

17 Q. Occupational medicine?

18 A. No.

19 Q. Mineralogy?

20 A. No.

21 Q. Okay.

22 A. I know something about the
23 mineralogy of asbestos and particles, but if
24 you ask me, am I an expert -- I'm assuming
25 the questions are am I an expert in these

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1 things.

2 Q. Exactly.

3 A. So, I would not declare myself
4 an expert in those issues.

5 Q. How about toxicology?

6 A. Same.

7 Q. Advertising?

8 A. Certainly not.

9 Q. Okay. Statistics, especially

10 biostatistics?

11 A. No. I mean, I use them, but I'm

12 not an expert.

13 Q. Okay. Surgery?

14 A. No.

15 Q. Molecular biology?

16 A. Well, as it relates to certain

17 concepts, yes. I mean, I'm not -- I'm not a

18 molecular biologist by training, but I use

19 molecular biology routinely and publish on

20 some of the -- using molecular biology as a

21 research tool.

22 Q. How about as an asbestos

23 historian? Are you an expert in the history

24 of asbestos?

25 A. No.

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1 Q. Or history of the state of the

2 art of asbestos?

3 A. No.

4 Q. Marketing? You an expert in

5 marketing, Doctor?

6 A. No.

7 Q. All right. Radiology?

8 A. No.

9 Q. Do you look at x-rays at all in

10 your practice, in your job?

11 A. Well, during grand rounds and

12 clinical discussions, x-rays are placed up

13 for everyone to see, and I view them and
14 understand what they show.
15 Q. And I, too, have seen x-rays,
16 but am not a radiologist. Do you have
17 any -- do you consider yourself to have any
18 special expertise in looking at radiology
19 specifically for changes of -- from -- of
20 the pneumoconioses?

21 A. Maybe more than you, but no.

22 Q. So, you would never attempt to
23 look at an x-ray, for instance, that someone
24 put in front of you and say, Doctor -- and
25 opine that you see changes consistent with

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1 asbestos exposure, for instance?

2 A. That's correct, I wouldn't do
3 that.

4 Q. Okay. How about state of the
5 art of medical science?

6 A. No.

7 Q. Expert in that?

8 Doctor, do you consider yourself
9 to be an expert on cigarette design or
10 manufacturing?

11 A. No.

12 Q. Okay. And I take it that goes
13 as well for cigars or pipes?

14 A. Right.

15 Q. Okay. Do you have any knowledge
16 of specific cigarette manufacturing
17 processes, practices, including product
18 design and quality control issues?

19 A. No.

20 Q. Okay. Do you consider yourself
21 to be an expert in or have you ever been
22 involved in cigarette smoke testing?

23 A. No.

24 Q. Or cigarette filter testing?

25 A. No.

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1 Q. Okay. And, now, let's talk
2 about carcinogenesis. Do you consider
3 yourself to be an expert in carcinogenesis?

4 A. In many of the aspects of
5 carcinogenesis, yes.

6 Q. And what do you limit yourself
7 to in carcinogenesis?

8 A. Well, the issues of genetic
9 errors that lead to changes in control of
10 cell growth. So, that's an area that I feel
11 comfortable in that I'm an expert.
12 Carcinogenesis is a broad area. I mean, if
13 you asked me if I was an expert in chemical
14 carcinogenesis, I'd say -- I'd say no, but,
15 I mean, the fundamental concepts of how
16 carcino- -- cancer develops, carcinogenesis,
17 through the production of genetic errors in

18 those genes that control cell growth, I am
19 an expert in that area.

20 Q. And how have you become an
21 expert in that area, Doctor?

22 A. Well, we're doing -- I've been
23 doing research in the control of cell growth
24 for many years. We have animal models that
25 we're studying to understand how those

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1 errors develop.

2 Q. Okay. And do you think you've
3 got it settled as to the mechanism for the
4 production of any particular type of cancer?

5 A. Well, if I did or anybody did,
6 they'd be headed for Stockholm. I mean, the
7 point is that we know a lot about the
8 mechanisms, but we've not established the
9 finite mechanism to the point where the
10 cancer can be blocked, but we certainly know
11 a great deal about the mechanisms of
12 carcinogenesis.

13 Q. Okay. And is there someone in
14 another field besides yours who might be
15 more expert in carcinogenesis than you are?

16 A. Oh, certainly. I mean, there
17 are many people who -- who are more expert
18 than I am in carcinogenesis, who do their
19 work at the level that I do my work in

20 asbestos disease who are at that fundamental
21 level in carcinogenesis. You know, I'm sure
22 you understand that as basic scientists who
23 compete for NIH dollars, we have to focus in
24 a specific area. My focus, my chosen focus,
25 is asbestos. If you take someone who has

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1 NIH grants in the mechanisms of
2 carcinogenesis, they're going to be more
3 expert than I.

4 Q. Exactly my point. So, my
5 question was: There are others who make
6 carcinogenesis their field of study --

7 A. Sure.

8 Q. -- and you don't?

9 A. Well, that's not fair, because I
10 do make carcinogenesis my field of study.
11 It's just it's not my -- it's not my primary
12 focus. If you ask the question, are there
13 others who make carcinogenesis who make it
14 their primary focus who would be more expert
15 than I, I'd say yes.

16 Q. Okay. How much cigarette smoke
17 does it take to produce emphysema, Doctor?

18 A. I don't know. It's going to
19 vary in different people. I mean, this is
20 clearly an issue of genetic susceptibility
21 because you know that there are many people
22 who smoke all their lives and don't get

23 emphysema, and then there are others who
24 don't smoke for nearly that long and do.
25 So, there must be genetic susceptibilities

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1 to emphysema, just like any other disease.

2 Q. Do you have any ideas of what
3 kinds of toxic gases would produce
4 emphysema?

5 A. I'd have to go back and look at
6 the list, but I think that nitrous -- nitric
7 oxide, nitrous oxide, some other oxidant
8 gases, sulfur dioxide, acrolein, I think,
9 does it, certain levels of ozone, I believe,
10 can produce emphysema.

11 Q. Have you ever studied ozone and
12 its effect on the lung?

13 A. I have, yes.

14 Q. Okay. Do you recall which --
15 which one that was, which study, which
16 paper?

17 A. Yeah, sure. I can find that for
18 you. This was in the context of -- of
19 asbestos fiber retention, and we found that
20 animals exposed to ozone retained more
21 asbestos fibers than those that were not
22 exposed.

23 Q. Do you have a reason for that
24 outcome?

25 A. Yes, I do. Let me find the

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1 paper for you and then I'll explain it.
2 Number 82, Exposure to low levels of ozone
3 results in enhanced pulmonary retention of
4 inhaled asbestos fibers. And our thinking
5 was that when an animal develops injury
6 to -- in the connective tissue compartment
7 of the lung, then, the lymphatic flow will
8 prevent a lot of the clearance of the
9 fibers, and it looks like the injury induced
10 by ozone induced that kind of injury and
11 prevented clearance, and that's what we
12 measured here.

13 Q. What kind of people are exposed
14 to ozone, low levels?

15 A. People who reside in urban
16 environments, typically.

17 Q. Okay. People like us, for
18 instance?

19 A. I don't know where you live,
20 but, I mean, if you live in a city that has
21 high ozone, yes.

22 Q. All right. Doctor, do you know
23 of any other host factors that might -- you
24 might want to look at in diagnosing or being
25 interested in the cause of emphysema, what

1 other host factors would you want to
2 consider or do you think are important in
3 the development of emphysema?

4 A. Host factors, other than --

5 Q. Such as genetic susceptibility,
6 such as those?

7 A. So, genetic susceptibility,
8 cigarette use, environment that the person
9 lives in, I suppose those would be the key
10 elements.

11 Q. But, host factors, do you
12 understand that to mean things specific to
13 the individual, such as lung geometry and
14 things like that? Are any of those things
15 important?

16 A. Well, they might be, but, you
17 know --

18 Q. That you know of.

19 A. I mean, how does a person's
20 individual lung structure affect whether or
21 not they're going to get emphysema? I
22 wouldn't know how to do that.

23 Q. That was my question. If you
24 don't know, you don't know.

25 A. Yeah. You know, I, obviously,

1 don't know.

2 Q. Doctor, the next question I'd

3 like to ask you about is chronic

4 bronchitis. What is chronic bronchitis?

5 A. So, this is inflammation of the

6 airway walls where there's -- where there

7 are repeated bouts of infection, where there

8 is increased secretion of mucus. I think I

9 said inflammation; if I didn't, that would

10 be a part of it. Usually, acute

11 inflammation. There may or may not be

12 sloughing of some ciliated cells.

13 Q. Okay. Doctor, what causes

14 chronic bronchitis?

15 A. Cigarette use causes chronic

16 bronchitis, exposure to oxidant gases.

17 There are a number of toxic gases that have

18 been identified as causing chronic

19 bronchitis. Industrial solvents. There are

20 a number of things that can cause chronic

21 bronchitis.

22 Q. Is the term itself, "chronic

23 bronchitis," is that more of a medical

24 diagnosis?

25 A. It is, right, but it's, again,

1 medical pathological, but you don't need the

2 pathology to make that diagnosis.

3 Q. What do you need to make that

4 diagnosis?

5 A. You -- you'd have to ask my
6 clinical colleagues, but my opinion is that
7 as they describe it, what we're talking
8 about is hypersecretion, inflammation,
9 repeated bouts of infection.

10 Q. Okay. And I understand, Doctor,
11 that you are not going to testify as to
12 clinical diagnoses. However, you do have it
13 in your report as chronic bronchitis. So,
14 to the extent that that term encompasses a
15 clinical diagnosis, I need to know what your
16 understanding of what your talking about
17 is. So, when you're talking about chronic
18 bronchitis, are you talking about anything
19 other than those things you've mentioned?
20 For instance, does the production of mucus
21 have to result in coughing up phlegm?

22 A. Well, that would be part of it,
23 sure. I mean, hypersecretion of mucus means
24 that the person is going to be bringing up
25 phlegm, sure. But regarding my report, I

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1 mean, if I testify to this, I'm going to
2 describe what it looks like pathologically.
3 I mean, here's what chronic bronchitis looks
4 like. I'm not going to --

5 Q. And you're not going to talk

6 about what causes it, are you?
7 A. Well, I might. I mean, if
8 you're asking me the question what do I
9 think causes it or what's my opinion on what
10 causes it, I could do that, but what I won't
11 do is how you make the clinical diagnosis.

12 Q. Okay. And how would you
13 determine what caused chronic bronchitis?

14 A. Well, this is from -- this is
15 a -- textbook descriptions of what causes
16 chronic bronchitis, the list that I went
17 through. So, these are not studies that
18 I've undertaken myself to establish the
19 cause.

20 Q. I see. I see. What does
21 chronic bronchitis look like pathologically,
22 Doctor?

23 A. Well, the airway walls can be
24 thickened, they have inflammatory cells that
25 have infiltrated the submucosa; those are

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1 the epithelial cells. There are increased
2 numbers of goblet cells; those are mucus
3 producing cells. You will see increased
4 numbers of white blood cells in the airway
5 lumens. You may have areas where the
6 ciliated cells have been released and
7 removed. All those are components of
8 chronic bronchitis. And there may be acute

9 inflammation from ongoing bouts of infection
10 at the same time.

11 Q. I'll ask you the same question
12 as I did about the emphysema. If you -- of
13 course, when you look at a microscopic
14 slide, you're looking at a microscopic piece
15 of the lung, or a small piece of the lung
16 microscopically. At any rate, it's not a
17 large sample, correct?

18 A. Usually, yeah.

19 Q. Okay. If you see the type of
20 evidence that you've described, thickened
21 walls and that sort of thing, is that enough
22 for you to say that that person had chronic
23 bronchitis or has chronic bronchitis?

24 A. It's the same -- exactly the
25 same scenario. In one of our lungs, we're

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1 sitting here not coughing, not too much,
2 anyway, at least not bringing up a lot of
3 sputum, and if we took a piece of our airway
4 out, I wouldn't expect to see that picture
5 that I described.

6 Q. Uh-huh.

7 A. So, if you do see it, you're led
8 to believe that there's chronic bronchitis
9 going on in that person, but the more you
10 have tissue you have available, the easier

11 it is to make the diagnosis and to know how
12 widespread that bronchitis is.

13 Q. And I take it nonsmokers get
14 chronic bronchitis?

15 A. They do, sure.

16 Q. Okay. And other than toxic
17 gases, oxidant gases, is there anything else
18 that will cause chronic bronchitis, in your
19 view?

20 A. So, we got cigarette smoking, we
21 have these gases.

22 Q. Uh-huh.

23 A. Infections can, and there are
24 genetic defects. I mean cystic fibrosis is
25 a good example of a defect that can lead to

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1 a chronic bronchitis-like syndrome as part
2 of the disease.

3 Q. How about allergies, Doctor?

4 A. Could allergies be confused?

5 I'm not really sure. I would ask a --
6 that's a good question. I would ask a
7 pathologist if he would confuse an allergic
8 airway with chronic bronchitis. There may
9 be some areas where that would overlap.

10 Q. You mean a physician
11 pathologist?

12 A. That's correct.

13 Q. How much smoking does it take to

14 produce chronic bronchitis if smoke caused
15 it?

16 A. I don't know. Again, it's got
17 to be -- susceptibility issues must be at
18 work. Obviously, not all smokers get
19 chronic bronchitis, and others do. So --

20 Q. Do you know what percent of
21 smokers develop chronic bronchitis?

22 A. I don't.

23 Q. Okay. Were you asked
24 specifically -- do you need a break?

25 A. I'm fine. No.

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1 Q. Were you asked to put something
2 in your report concerning chronic bronchitis
3 and emphysema?

4 A. Not specifically. I was asked
5 to describe what the effects of cigarette
6 smoking are on the lung, and I added those.

7 Q. Okay. And let me get this, just
8 to make sure. You have not done any
9 specific research into chronic bronchitis
10 and cigarette smoking, have you?

11 A. I have not.

12 Q. Or emphysema?

13 A. I have not.

14 Q. And nor have you ever testified
15 as to those?

16 A. That's correct.
17 Q. Okay. And in any of the cases
18 for which you testified for asbestos
19 plaintiffs, did any of those individuals
20 have either chronic bronchitis or emphysema
21 as a diagnosis?
22 A. Yes.
23 Q. Okay. And at those trials, did
24 you comment on the effect of either of those
25 diseases on their condition of either lung

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1 cancer or asbestosis?
2 A. Oh, I may have. If I were asked
3 either by -- I could have been asked by
4 either side attorney to comment on whether
5 or not those diseases were present, based on
6 the pathology. Yes, I've probably done
7 that.
8 Q. Not whether they were present,
9 Doctor, but what effect that would have had
10 on that person's disease --
11 A. No.
12 Q. -- of asbestosis or lung
13 cancer.
14 A. No, I don't think I would have
15 testified to that.
16 Q. Okay. Why wouldn't you have
17 testified to that?
18 A. Well, if I understand your

19 question, I'm talking about asbestosis, how
20 asbestosis develops, how lung cancer
21 develops, how a mesothelioma develops, and
22 the diseases chronic bronchitis and
23 emphysema are separate processes. Now, as
24 you asked the question, cigarette users have
25 changes in their airway walls, typically,

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1 which may play a role in the synergistic
2 issues, and part of that is -- is the
3 ongoing chronic bronchitis. So, you know, I
4 don't know that I would have testified just
5 that way, but, certainly, some of the
6 changes in the cells that line the airway
7 walls are very important to understand in
8 relation to how the synergies might work
9 between asbestos and cigarette smoke. I
10 have certainly testified to that.

11 Q. Okay. Well, does it have
12 something to do with what the case is about
13 as to what you testified? For instance, in
14 the asbestos cases, where you were
15 testifying for a plaintiff that asbestos
16 caused their disease, you didn't mention
17 cigarette smoking as a possible cause or
18 contributor, but in this case, you do, and I
19 was just trying to separate out what the
20 difference is.

21 A. Well, I'm not sure that you got
22 that right. I mean, that the -- if we're
23 talking about lung cancer --
24 Q. Okay.
25 A. -- I thought that I had said

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1 earlier this morning that -- that I would --
2 I would have been asked whether or not
3 cigarette smoke could have caused disease,
4 and I said yes, I think, certainly could
5 have caused the cancer.

6 Q. Okay.

7 A. And I testify as to how
8 cigarette smoke and asbestos function
9 together to produce the synergy that they
10 do. So, I mean, I think I said that I
11 testified to that, and I just said it again.

12 Q. Okay. What I'm trying to figure
13 out is your use of -- or your proposed
14 testimony concerning emphysema and chronic
15 bronchitis. Is the point there to say that
16 there are changes caused by those two
17 processes that results in greater incidence
18 of severity of asbestos-related diseases?
19 Is that what you're saying?

20 A. Okay. The process related to
21 chronic bronchitis could have something to
22 do with the increased incidence of cancer in
23 people who are exposed to cigarette smoke

24 and to chronic -- and to asbestos together
25 because the changes in the airway walls

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1 would allow us to -- or allow me to opine
2 about how the synergies work. So, in that
3 sense, I would combine those two.
4 Emphysema, that's another issue, I think.
5 I'm not sure what that really has to do with
6 asbestos disease, other than to make it
7 worse for the person who has both emphysema
8 and asbestosis.

9 Q. Well, that was my question. I
10 was trying to find out what it had to do
11 with asbestos-related disease.

12 A. Well, I'm trying to answer as
13 best I can --

14 Q. All right.

15 A. -- and those two diseases,
16 asbestosis and emphysema, could be in the
17 lung at the same time.

18 Q. They could be. Do you know --
19 is emphysema considered to be a restrictive
20 or an obstructive disease?

21 A. It's an obstructive disease.

22 Q. Okay. And why is it called
23 obstructive, Doctor?

24 A. Because once you take a breath
25 and then you exhale, the gas is obstructed

1 from being exhaled.

2 Q. And what obstructs the gas being
3 exhaled?

4 A. Well, it could be a couple of
5 different things. If it's at the alveolar
6 level, it's the collapse of the alveolar
7 walls, that they tend to be -- they tend to
8 trap air in a bubble-like situation. If
9 it's the airway, the airways can be
10 hyperactive and actually close down and
11 obstruct outflow in that way.

12 Q. Okay. What, in your view, are
13 some important obstructive diseases besides
14 emphysema?

15 A. Emphysema, chronic bronchitis,
16 asthma are the main chronic obstructive
17 pulmonary diseases.

18 Q. Okay. And asbestosis, would you
19 call that obstructive or restrictive?

20 A. That is a restrictive disease.

21 Q. And what is meant by
22 "restrictive disease"?

23 A. That means you are restricted
24 from taking a deep breath.

25 Q. And what restricts your ability

1 to take that deep breath?

2 A. The elasticity of the lung is
3 compromised because the elastic tissue is
4 replaced by scar tissue or collagen, which
5 does not have the elasticity necessary to
6 have full expansion of the lung.

7 Q. Okay. Now, Doctor, in your
8 view, do you believe that cigarette smoking
9 causes either restrictive or obstructive
10 disease?

11 A. Well, it largely produces
12 obstructive disease.

13 Q. Largely?

14 A. Yes.

15 Q. Meaning it can produce
16 restrictive disease?

17 A. Well, it has been shown that
18 cigarette smoke can produce some scarring in
19 the lung, particularly at the ends of the
20 small airways. So, how this might influence
21 the lung function studies that the
22 physicians do or the -- that the individuals
23 do who are studying gas exchange and lung
24 volumes and things like that, pulmonary
25 function testing, if there is a restrictive

1 component, how much of that's due to

2 cigarette smoke, I mean, I don't know, but
3 there's a possibility.

4 Q. There's a possibility. Is it
5 possible -- would you expect a physician
6 examining a patient to be able to
7 differentiate between obstructive and
8 restrictive disease in a patient?

9 A. Well, sometimes they can very
10 well, but then there are other times where
11 they're -- both components can be
12 recognized.

13 Q. Well, I guess if you recognize
14 both components, then you've differentiated,
15 haven't you?

16 A. Well, let me make sure I
17 understand your question. In some people,
18 you can say that there is a restrictive
19 disease.

20 Q. Yes.

21 A. In other people, you can say
22 that there's an obstructive disease. And,
23 then, in others, you can see components of
24 both problems and you can say that one may
25 be more advanced than the other, or they

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1 both are present and cause -- are both
2 causing their own kinds of problems.

3 Q. Right. But what I'm asking is a
4 competent physician who practices in that

5 field should be able to differentiate
6 between those two or among those three
7 scenarios that you just gave, correct?

8 A. I agree.

9 Q. Okay.

10 MR. DUNCAN:

11 Why don't we go ahead and take
12 a break now.

13 THE VIDEOGRAPHER:

14 Now off the record. It's
15 1:29.

16 (Whereupon, a discussion was
17 held off the record.)

18 THE VIDEOGRAPHER:

19 Return to the record. It is
20 1:41.

21 EXAMINATION BY MR. DUNCAN:

22 Q. Dr. Brody, some more questions
23 about your expert report, and I'm still on
24 Summary of Testimony. And I'd like to know,
25 in the asbestos cases in which you testified

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1 where the plaintiff was a smoker, were you
2 ever able to separate out which exposure --
3 and let's take lung cancer first -- which
4 exposure led to that individual's lung
5 cancer?

6 A. No.

7 Q. Is that what you testified to on
8 direct, or do you recall?
9 A. So, are you asking me any
10 individual who was exposed to asbestos and
11 they were a cigarette smoker?
12 Q. Uh-huh.
13 A. Is that the question? Which
14 exposure, asbestos versus cigarette smoke?
15 Q. Caused that cancer.
16 A. No, I've never opined on that.
17 I mean, this -- they are both contributing
18 to the causation of cancer. They're both
19 carcinogens.
20 Q. Let me ask it another way. In
21 such a case as I just described, has it ever
22 been your opinion that the asbestos caused
23 the individual's lung cancer?
24 A. And not the -- I don't want to
25 add -- okay. Yes. Yes. It is my opinion

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1 that the asbestos caused the cancer as a
2 component of the exposure, yes.
3 Q. Okay. And then I think you told
4 me, on cross-examination, if you were asked,
5 could smoking also have caused it, your
6 answer would be yes?
7 A. That's correct.
8 Q. Okay. But, initially, on direct
9 examination, your point was to talk about

10 asbestos, correct?

11 A. That's correct.

12 Q. All right. And not how they
13 worked together to produce cancer?

14 A. Well, I've done that, and if
15 I -- and I'm typically asked to do that, how
16 they work together.

17 Q. Okay. Do you, when you testify,
18 give your opinions to a reasonable degree of
19 scientific certainty?

20 A. Yes.

21 Q. Okay. Where is that standard
22 for you, Doctor? How sure do you have to
23 be, if you can quantify that at all? Not in
24 terms of percentage, but give me an example
25 of something that you feel confident

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1 testifying to a reasonable degree of
2 scientific certainty.

3 A. Well, I understand it to be in
4 the courtroom that more likely than not.

5 Q. Well, what I'm really asking you
6 is this: You have an individual who's a
7 plaintiff in an asbestos case, and you have
8 given expert testimony that, in your view,
9 asbestos was the cause -- or asbestos
10 exposure was the cause of that individual's
11 lung cancer. Do you make that statement --

12 in that case, would you make that statement
13 to a reasonable degree of scientific
14 certainty? In other words, is that
15 something you could be certain of to that
16 extent?

17 A. Well, that's the way I have to
18 give my testimony. I mean, that's the way
19 it's described to me and, so, that's what I
20 try to do, yes.

21 Q. Okay. And specifically then, my
22 question is: What do you need in the case
23 of an individual to be able to opine to a
24 reasonable degree of scientific or medical
25 certainty that the cancer in that

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1 individual's lung was caused by that
2 individual's exposure to asbestos?

3 A. Well, if I know the person has a
4 history of exposure and they have a cancer,
5 then, I can offer the opinion that it was
6 caused by asbestos. Now, if it's -- there
7 are different degrees of assurance in that
8 case, certainly. I mean, if the person has
9 asbestosis, that makes it even more likely.
10 If they've had a heavy exposure, that makes
11 it more likely. So, I mean, there are -- in
12 every kind of situation like this, there are
13 some areas where you are more sure than
14 others.

15 Q. Okay. And what I'm trying to
16 find out from you is sort of what your
17 minimum criteria are before you'll get up in
18 front of a jury and say this person's lung
19 cancer was caused by this substance. And
20 just a history of exposure?

21 A. I have offered opinion -- if
22 it's an occupational exposure to asbestos, I
23 can offer that opinion, yes.

24 Q. Okay. And what is an
25 occupational exposure?

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1 A. Well, this is a established
2 exposure in an occupational setting where a
3 person's exposed year after year -- month
4 after month, year after year to asbestos.

5 Q. Well, how -- that's what I'm
6 trying to -- can you quantify it at all, or
7 do you not know?

8 A. I don't know.

9 Q. Okay.

10 A. I don't know what it takes, and
11 it takes more in some people than others.

12 Q. Okay. So, then, I guess I could
13 ask you if it were three months in the
14 summer tearing down houses, would that
15 qualify as an occupational exposure?

16 A. For lung cancer, no.

17 Q. No?
18 A. I don't think so.
19 Q. Well, how much would?
20 A. I can't do that for you. I
21 don't know.
22 Q. You can tell me what can't, but
23 just not what can?
24 A. I don't know if that's fair, but
25 that's pretty much it. I mean, I can't

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1 really define it very well.
2 Q. Do you care -- in other words,
3 let's look at it from this point. Say you
4 have some -- say you have some records in a
5 case, medical records in a case, and there's
6 a notation, occupationally exposed to
7 asbestos, and the person is both a smoker --
8 and the person is also a regular smoker, or
9 has been. Is that enough for you -- just
10 knowing those two facts, is that enough for
11 you to opine as to the cause of lung cancer
12 in that individual?
13 A. Yes.
14 Q. And what would you opine in that
15 case?
16 A. As I've said in the past, that
17 those are -- that's a cancer caused by the
18 synergistic action of asbestos and cancer --
19 and cigarette smoke. In other words, I'm

20 not going to go in and find out what
21 occupational exposure means. That's not
22 what I do. That's not what I'm trained to
23 do.

24 Q. And you would testify, just
25 knowing those two facts, to a reasonable

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1 degree of medical or scientific certainty
2 that you knew the cause of that individual's
3 cancer, based on those two facts?

4 A. Well, see, the thrust of my
5 testimony is how the -- the materials,
6 asbestos and cigarette smoke, cause
7 disease. I mean, that's the main cause -- I
8 mean -- I'm sorry -- that's the main thrust
9 of my testimony. Now, it's -- it's unusual
10 for me to give the specific cause in a given
11 individual. I think we've been through this
12 before. So, it's typically a hypothetical.
13 Given that a person is occupationally
14 exposed and a person is exposed to cigarette
15 smoke, is it my opinion that those agents
16 cause the cancer? Yes. Now, you're asking
17 me now, you know, a hypothetical in which,
18 you know, I really don't know much about
19 this person. So, can I say that asbestos
20 exposure and cigarette smoking causes
21 cancer? Yes. Yes, it's my opinion it does,

22 but, now, you're asking about a specific
23 individual, and now you seem quizzed that --
24 or nonplused that I would give that
25 opinion. You know, I'm not really sure what

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1 the -- what we're trying to do, what we're
2 after here.

3 Q. Okay. I'm sorry if I haven't
4 made myself clear.

5 You have, have you not, in cases
6 involving individual plaintiffs in asbestos
7 cases opined to a reasonable degree of
8 medical or scientific certainty that that
9 individual's lung cancer was caused by
10 exposure to asbestos, have you not?

11 A. Yes.

12 Q. Okay. So, what I'm trying to
13 find out is how much do you need in order to
14 say that?

15 A. Right. And I think you stated
16 it. I mean, there's a medical record that
17 says exposure, occupational exposure, and
18 I'm going to assume and I have assumed in
19 the courtroom that this has been established
20 by someone who knows, whether it's an
21 industrial hygienist or an occupational
22 physician or whatever, has established that
23 there's been an occupational exposure, and
24 that's what I use.

25 Q. Doctor, as a serious researcher

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1 at a high-level institution such as Tulane,
2 do you care about research details?

3 A. Well, of course. We're
4 certainly not talking about research details
5 here right now.

6 Q. No. We're just talking about a
7 lawsuit. Is that what you mean?

8 A. Well, no. What I mean is you're
9 asking me broad questions about exposure.
10 These aren't research details to me.

11 Q. Do you care what your rats get
12 exposed to?

13 A. Of course.

14 Q. Why do you keep rats in
15 pathogen-free circumstances?

16 A. So that we're not -- so that
17 they're not getting lung infections.

18 Q. Why do you care whether or not a
19 rat has a lung infection before you put
20 asbestos down there?

21 A. Because that can complicate the
22 interpretation of the process that's
23 ongoing.

24 Q. Do you try to limit your rats'
25 exposure to any other confounders in your

1 lab?

2 A. Absolutely.

3 Q. Okay. So, if you found out, for
4 instance, while you were doing a rat
5 asbestos exposure experiment that in that
6 very room where those rats were housed or,
7 let's say, where the control group was
8 housed, asbestos abatement were going on at
9 the same time, would you have a problem with
10 that?

11 A. Well, I might, but I would need
12 to know how much asbestos was released by
13 the abatement process, but, yes, okay, go
14 ahead.

15 Q. You would care about that?

16 A. Sure.

17 Q. Okay. And why would you care
18 about that?

19 A. Because it could add asbestos to
20 the process. I mean, there's no scenario in
21 which that process could happen, but
22 understanding this is a hypothetical thing.

23 Q. You make sure it doesn't happen,
24 right?

25 A. Of course.

1 Q. Okay. And the reason you do
2 that is so your results will not be
3 confounded?

4 A. Right.

5 Q. Okay. Now, what I'm asking you
6 is: Do you carry that degree of care with
7 you when you testify about people in a
8 courtroom? And your answer to me seemed to
9 be that's unimportant detail and you'll
10 assume the exposure. Did I misunderstand?

11 A. Well -- yes. These are apples
12 and oranges you're talking about here. It's
13 completely separate issues. You have gone
14 through a list of things which I'm not an
15 expert on, and I think we've -- I haven't
16 heard any -- much discussion about that, so,
17 I think we'd agree on that. So, if we're
18 talking about exposure that an individual
19 gets, I'm not the one who searches out the
20 details on the person's exposure. I don't
21 do that. You already established I'm not an
22 expert on that. I'm going to assume, if the
23 medical record says exposure, that that's
24 what the -- that's what's happened to this
25 person.

1 Q. Do you care about what type of
2 fiber they were exposed to?

3 A. That could have something to do
4 with my testimony, sure.

5 Q. That's not exactly what I
6 asked. I said: Do you care what fiber they
7 were exposed to?

8 A. Do I care? Well, I care, I
9 guess, depending upon what I'm asked to do.
10 I may or may not care. It depends on the
11 questions.

12 Q. Okay. Let me go back to my
13 basic scenario, which is, you're testifying
14 about an individual whose medical records
15 state occupational exposure to asbestos.
16 The person is -- the person has lung
17 cancer. Does it matter to you what type of
18 asbestos exposure -- or what type of
19 asbestos exposure they had, or what type of
20 asbestos fiber they were exposed to?

21 A. No. All of the fibers cause
22 cancer. So, just to answer that question as
23 simply as possible, no.

24 Q. Okay. So, what I'm trying to
25 find out is while it is important to you,

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1 and I know you characterize them as apples
2 and oranges, but while it is important to
3 you to have those results or have that
4 information when you do controlled
5 experiments with your animals, it's not

6 important for people exposure, right, as far
7 as your opinion goes?

8 A. It depends on the questions
9 you're asking. If you -- if you're asking
10 me questions about fiber clearance and about
11 what these fibers look like in the lung and
12 whether or not they make asbestos bodies and
13 how they affect individual cells, then, I
14 will want to know what the individual fibers
15 are, but to answer the question you asked
16 me, as to whether or not the person has a
17 cancer, do I care which fibers he was
18 exposed to, no. So, I think you're still
19 mixing up the details that I need to know in
20 my work versus what I need to know in the
21 courtroom to give an opinion that -- of the
22 opinions that I give.

23 Q. If you expose your laboratory
24 rats to chrysotile fibers for X period of
25 time and the rats develop lung fibrosis,

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1 tell me what is it about that experiment
2 that would lead you to be able to determine
3 that those rats -- the asbestosis in those
4 rats was caused by the inhalation of
5 chrysotile. Tell me what things you would
6 look for in order to be sure that that was
7 correct.

8 A. Well, first of all, you have a
9 control group that was exposed to nothing or
10 to some other kind of particle, and those
11 animals don't get fibrosis. So, then, you
12 take the fibrogenic agent that you've given
13 them and then you not only see it at the
14 sites where the fibrosis is developing, but
15 that's what the agent -- the test agent that
16 you've put in there so you can reach the
17 opinion.

18 Q. Okay. Let's say that you
19 decided to do a spectral analysis of the
20 fibers found in these rats, and it turned
21 out that instead of getting pure chrysotile,
22 that there was a mixture of chrysotile and
23 crocidolite asbestos. Would there be a
24 problem with that experiment then and a
25 problem with your conclusions about what

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1 caused the fibrosis?

2 A. Well, again, it depends on what
3 you want to know.

4 Q. Did chrysotile asbestos cause
5 fibrosis?

6 A. Sure. And, of course, you would
7 establish before you put the material in
8 there what the nature of it was, but you're
9 giving me the scenario where I didn't do
10 that, which would be pretty dumb, but,

11 anyway, I didn't do it and, so, I would have
12 to assume that both fibers contributed since
13 we know that each one alone causes fibrosis.

14 Q. Okay. But for a human, you
15 wouldn't need to know that detail, would
16 you?

17 A. You know, you're asking me
18 different -- these are different issues.
19 You were talking about an experimental
20 modeling system which I am controlling and
21 which I am causing the disease, in which I
22 have to know what the details are because I
23 am causing the disease, and I have to follow
24 it, and now you're going to a setting where
25 someone's been exposed and something that I

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1 know nothing about, where I had no control
2 over what happened to this person, and
3 you're trying -- and you're asking me if I
4 need to have the same kind of details about
5 that person that I do about my animals. I'm
6 sorry. I'm just not seeing that
7 relationship.

8 Q. You don't have to see it. You
9 just have to answer my questions.

10 A. Yeah, of course. And my answer
11 is, no, I don't need to have that kind of
12 detail on these people, I have no way of

13 getting that kind of detail, and I don't
14 need that kind of detail to give the
15 testimony that I do.

16 Q. And that is becoming apparent.
17 What I'm trying to ask you is, if you could
18 get that kind of detail on a person about
19 whose disease causation you were opining,
20 would you like to get it?

21 A. Okay. Now, that's a
22 different -- a completely separate question
23 from what we've had. And would I like to
24 get it? I guess it depends on the questions
25 that I'm going to be asked by the attorney

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1 in this case. If the attorney is going to
2 ask me what are the ratios of chrysotile to
3 crocidolite in this person, then, surely, I
4 would need to know it, but if the attorney
5 is asking me whether or not an exposure that
6 the person got contributed to the cancer,
7 then, I don't need to know.

8 Q. Let's say you're being asked did
9 this person's occupational exposure cause
10 their lung cancer, did their occupational
11 exposure to asbestos cause their lung
12 cancer, let's say you're being asked that
13 and, so, you're saying that the details you
14 have on your lab rats is not required in the
15 courtroom; is that right?

16 A. In -- yes, in the sense that
17 we've just discussed the details, yes.
18 Q. And even if you had that
19 information available, you wouldn't need it
20 because it's not necessary?
21 A. To give my opinion as to whether
22 or not an occupational exposure to asbestos
23 contributed to a person's lung cancer, I
24 would not need those kinds of details,
25 that's correct.

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1 Q. How do you determine whether or
2 not somebody has had an occupational
3 exposure to -- to -- how does one determine
4 whether or not someone's had occupational
5 exposure to asbestos? How is that usually
6 done?

7 A. Well, I guess it's done by
8 questionnaire and by interview, by work
9 history, families. I mean, I don't know.
10 That's what the epidemiologists typically
11 do, I guess -- industrial hygienists.

12 Q. Do you think that there's any
13 error inherent in those methods of
14 collecting information?

15 A. I suppose so. I can't tell you
16 how much, but I don't know that it would be
17 perfect.

18 Q. Okay. We earlier talked about
19 bias. Imagine that you have somebody who's
20 suing or claiming against an asbestos
21 manufacturer for asbestos-related diseases.
22 Would you imagine that there would be any
23 sort of a bias in how they reported their
24 exposure?
25 A. I suppose so, sure.

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1 Q. Okay. If you could get in every
2 single case of an individual who died of
3 lung cancer and was also exposed to asbestos
4 a fiber burden analysis, an assay of all the
5 fibers in the lung, would you want that?
6 A. Yes, that would be a very
7 interesting study.
8 Q. Why would you want that?
9 A. That would give you some
10 information currently not available about
11 fiber types and fiber amounts that are found
12 in the lungs of people with cancer. I mean,
13 the way that's been done in the past is by
14 very separate groups in different kinds of
15 settings, and it's hard to put it all
16 together, but as you describe it, it would
17 be a very important piece of information.
18 Q. But not something, if I
19 understand your previous testimony
20 correctly, but not something you would need

21 in order to testify that a given individual
22 died or had asbestos-related lung cancer.
23 A. Well, this goes back to the --
24 to the issue of what I use for my
25 testimony. I use for my testimony

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1 information that's been gathered to say
2 whether or not the person's occupationally
3 exposed. So, it's in the record he's
4 occupationally exposed. I go ahead and give
5 my testimony as to how asbestos causes
6 disease, and if it caused cancer in this
7 case, then, so be it.

8 Q. And that's where -- and that's
9 where I'm trying to get to, Doctor. I
10 understand that you get -- that you testify
11 that asbestos causes disease, and this is
12 how it causes it. Okay. I understand that
13 part of your testimony. It's also my
14 understanding, and I think you verified
15 this, that you go another step further than
16 that and say, in this individual, their
17 exposure to asbestos caused their disease.

18 A. That is typically not the way it
19 happens. That -- I have done that in some
20 courtrooms.

21 Q. Uh-huh.

22 A. But, usually, I can't do that

23 either because I'm not a medical doctor or
24 because the situation has not been
25 established that I know just -- that I know

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1 about this person's actual medical records.
2 If that's been established, then, I don't --
3 I can't do that.

4 Q. All right.

5 A. But there have been some cases
6 in which there's been an obvious
7 occupational exposure, I've read the medical
8 records and I've been asked, based on this
9 medical record, is it my opinion that this
10 person's disease was caused -- this person's
11 cancer was caused by this exposure, and I
12 have given that opinion yes. But a lot of
13 times, I don't get to do that, or I haven't
14 been asked to do that.

15 Q. Okay. Do you think you ought to
16 be doing that in a case where you only have,
17 as you describe it, the only things you
18 need, which is an occupational history of --
19 a history -- I'm sorry -- of occupational
20 asbestos exposure and a diagnosis of lung
21 cancer? Do you think you ought to be doing
22 that?

23 A. Well, "ought to do that" is an
24 interesting question, I guess. If I feel
25 confident that there is an exposure, an

1 occupational exposure, and the person has a
2 lung cancer, I think I can do that, yes.

3 Q. Okay. And that's all you need.
4 And as I understand it, let me make sure of
5 this, that you're not sure what you mean by
6 "occupational exposure"?

7 A. Right. In other words, I can't
8 define it, I haven't defined it, that's not
9 my field to define.

10 Q. So, and all someone has to do is
11 say "occupational exposure," and you don't
12 need to know more?

13 A. Well, I think we've been around
14 this a number of times, and I guess maybe we
15 can -- I'm not sure exactly how to settle
16 it, obviously, but -- but if I'm in a
17 courtroom where there is an exposure, I'm
18 most likely to be given a hypothetical
19 rather than about that person, so -- but if
20 it's -- but I understand you're interested
21 now about my testimony about that specific
22 person and the cause. If -- if I've read
23 the medical record and I know there's an
24 occupational exposure as established by an
25 expert in that field, I've done that and I

1 think I ought to do that.

2 Q. Okay. But you don't care what
3 that occupational exposure is? I mean how
4 much. Are there differences in occupational
5 exposures?

6 A. Well, sure, there are wide
7 differences, and -- and -- and it's not my
8 job to sort that out. I think that, as I
9 understand the process, there are going to
10 be others who are going to establish what
11 that exposure is, and I can't do that.

12 Q. Doctor, do you have any idea how
13 many claimants in this Falise action there
14 are, how many claimants to the trust --

15 A. No.

16 Q. -- that this case involves?

17 A. I don't.

18 Q. Do you know what they worked
19 in --

20 A. No.

21 Q. -- these claimants? Do you know
22 what types of exposures they had?

23 A. No.

24 Q. Do you know what types of
25 asbestos -- asbestos fibers they were

1 exposed to?

2 A. I don't.

3 Q. Do you know what other

4 occupational exposures they had?

5 A. No.

6 Q. Would it be important to you,

7 Doctor, if an individual who had claimed

8 against the Johns-Manville Trust claimed

9 that -- and they were paid, let's say, for

10 lung cancer, and they were a smoker, is that

11 all you need to know for you to testify that

12 in that individual both of those things

13 contributed to the lung cancer? Is that all

14 the information you'd need to know?

15 A. So, I would treat each of these

16 individuals like I had any other case?

17 Q. Just let's take it as an

18 individual. Let's assume there's an

19 individual and you have information that

20 they were exposed to asbestos and that they

21 were a regular cigarette smoker --

22 A. Right.

23 Q. -- and that they had lung

24 cancer.

25 A. Right, I would opine that those

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1 contributed to the person's lung cancer.

2 Q. Okay. And you wouldn't need to

3 know the cell type of the cancer?

4 A. No.

5 Q. You wouldn't need to know the

6 location of the cancer?

7 A. No.

8 Q. You wouldn't need to know that

9 they had been exposed -- whether or not

10 they'd been exposed to nickel?

11 A. No. Those things wouldn't help

12 me.

13 Q. You wouldn't need to know if

14 that person had been exposed to chloromethyl

15 ether?

16 A. No. I mean, it is -- no. I

17 mean, those are other carcinogens, and if

18 you ask me could those -- could those

19 carcinogens cause cancer? Yes. We're

20 dealing now with asbestos and cigarette

21 smoke. Those cause cancer.

22 Q. I didn't understand your last

23 statement, we're dealing now with cigarette

24 smoking and asbestos.

25 A. Well, I --

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1 Q. Excuse me. But I thought we

2 were dealing with the cause or potential

3 causes of lung cancer.

4 A. Okay. And I'm asked to give my

5 opinion on whether or not asbestos and

6 cigarette smoking causes cancer. That's

7 what I give my opinion on.

8 Q. Okay. So, anything -- any other
9 potential causes of cancer are irrelevant to
10 your testimony?

11 A. Well, they're irrelevant to the
12 description of -- that I'm going to give to
13 the jury on how asbestos and cigarette smoke
14 injure the lung. Now, if we get down again
15 to the individual of what has caused their
16 cancer, asbestos and cigarette smoke, if
17 that's what this person is exposed to,
18 contribute to the cancer. Now, if they're
19 exposed to nickel and carbon -- whatever it
20 is, chloromethyl ether, which are
21 carcinogens, that might add, increase the
22 risk, sure. If you ask me would those
23 increase the risk of the person getting
24 cancer? Probably.

25 Q. And you don't care whether or

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1 not they had adenocarcinoma or small cell or
2 squamous cell carcinoma. Cell type is
3 irrelevant to you as to causation; is that
4 correct?

5 A. Well, all of those asbestos --
6 I'm sorry -- all of those cancer types are
7 caused by cigarette smoking and asbestos
8 exposure.

9 Q. And how do you know this?

10 A. The pathology textbooks say so.

11 Q. Okay. Which pathology textbook

12 says so?

13 A. Dr. Hammar's book; Dr. Roggli

14 has written a paper on that.

15 Q. Okay. Any pathologists that you

16 would rely on who are not frequent

17 testifiers in asbestos cases, for

18 instance --

19 A. Well, Dr. --

20 Q. -- on smoking and health cases?

21 A. -- Andrew Churg, Gerald

22 Abraham. Those are the pathologists who --

23 on both sides who write about the same

24 thing.

25 Q. Does Dr. Hammar collaborate with

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1 anyone in his pathology text?

2 A. I'm not sure.

3 Q. Okay.

4 A. There's a -- you know, Dr. Dale.

5 Q. Dr. Dale?

6 A. Right.

7 Q. In Dale and Hammar's text, is

8 there any mention of a cell type of cancer

9 known as BAC?

10 A. Bronchioloalveolar cell

11 carcinoma, is that what you're talking

12 about?

13 Q. Correct.

14 A. I'd have to go back and look.

15 Probably. I'm sure he discusses it.

16 Q. Do you know what the
17 relationship is between cigarette smoking
18 and BAC?

19 A. I'd have to go back and look to
20 be sure.

21 Q. Okay. Do you know of any of the
22 relationships between various cell types of
23 cancer and relationship to smoking? Do you
24 know of any of those?

25 A. Well, I know that cigarette

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1 smoking can be associated with just about
2 any of the kinds of bronchogenic
3 carcinomas. Whether or not there are some
4 more likely than others, I mean, I know
5 that -- that squamous cell cancer is a very
6 common one, as is adenocarcinoma. There may
7 be a shift to adenocarcinomas more recently,
8 but I think even in small cell carcinomas,
9 they're all identified, associated with
10 cigarette use. I can't give you the
11 specific numbers as to years smoked or
12 things like that.

13 Q. But do you think -- so, all of

14 them are equally related to cigarette
15 smoking, in your view?
16 A. I'm not sure about equally, but
17 they've all been identified as associated
18 with cigarette use.
19 Q. Does it matter to you how -- how
20 much it's related one to the other? That's
21 not necessary for you?
22 A. It's not.
23 Q. Okay. Likewise, in the scenario
24 that I gave you a moment ago where you have
25 an individual who is a former claimant of

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1 the trust and let's say that they were paid
2 for lung cancer for the asbestos --
3 supposedly, the asbestos portion of their
4 lung cancer, and let's say that they were
5 also a smoker, what information would you
6 need to be able to opine that that
7 individual's cancer was caused or
8 contributed to by their smoking? Just the
9 fact that they smoked?

10 A. Well, if they smoke, then, they
11 are going to be affected by the cigarette
12 smoke, and all I can do is rely on what the
13 epidemiologists tell us about the synergies
14 of asbestos and tobacco.

15 Q. How much smoking, Doctor?

16 A. I can't answer that because it's

17 going to vary with the individual. Some
18 people can smoke for a long time and not
19 show evidence of disease, and some people
20 don't need to smoke for very long and show
21 disease. There are clear susceptibilities.

22 Q. Well, that's the point I'm
23 trying to ask you, Doctor. Do you have an
24 opinion as to how much cigarette smoke is
25 necessary before you're -- you personally

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1 are willing to get up on the stand and swear
2 to a scientific -- reasonable -- to a
3 reasonable degree of scientific or medical
4 certainty that that individual's lung cancer
5 was caused by their smoking?

6 A. I can't do that. I don't know
7 how to ferret that out. I mean, if you told
8 me the guy smoked half a pack a day one
9 year, I don't think that's enough. I mean,
10 I haven't seen any statistics like that, but
11 if -- but I can't draw a line after that. I
12 just don't know how to do that.

13 Q. Well, maybe I misunderstood
14 you. Are you saying that's something you
15 couldn't do, meaning get that information,
16 or give that testimony?

17 A. Well, I don't know enough about
18 the amount of smoking that it takes, and I

19 don't know that anybody can establish
20 precisely for any given individual just how
21 much smoking it takes to cause disease in
22 that given person. I don't know how you do
23 that. I can't do that.

24 Q. That's exactly my point. Given
25 the fact that you can't do that, is it then

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1 proper to swear to a reasonable degree of
2 medical or scientific certainty that the
3 smoking, whatever it was, did cause it?
4 A. It's the same issue. You know,
5 we're talking about a group of individuals,
6 and even if we talk about -- about
7 specifics, I'm going to give an opinion that
8 cigarette smoking and asbestos exposure
9 causes these various changes in the lung.
10 It's -- it would be unlikely for me to be
11 able to give an opinion on whether or not a
12 given individual -- a given individual's
13 disease was caused by -- by these two
14 agents. I've tried to give you the scenario
15 in which I could do that. I certainly
16 haven't done that, as you pointed out, in
17 all of these cases that we've talked about.
18 So, can I do that? Yes, I can do that if I
19 know that the person smoked cigarettes and
20 was exposed to asbestos, and that's the
21 concept of my testimony. Now, just how much

22 it takes in a given individual to do that, I
23 can't tell you, and if you ask me that in
24 court, can you tell me whether or not this
25 person smoked enough to cause disease, I

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1 wouldn't be able to do that.
2 Q. Right. If you can't tell -- and
3 I understand that you think you've answered
4 this, but let me see if we can make this
5 clear. Would it be accurate to state it
6 this way: That you can testify that
7 cigarette smoking and asbestos exposure can
8 cause asbestosis, but you're not going to be
9 willing to testify that, in a given
10 individual, it did cause the disease, lung
11 cancer -- if I misstated that -- in other
12 words, you're willing to say that asbestos
13 exposure and cigarette smoke can cause lung
14 cancer, but in an individual, you're not
15 going to be able to say that it, in fact,
16 did -- to a reasonable degree of medical or
17 scientific certainty, did cause it in that
18 individual?

19 A. Okay. There, it would really
20 depend on what I knew about the individual.

21 Q. Okay.

22 A. So, if you bring up an
23 individual and you show me he had a 40-pack

24 years and he had occupational exposure and
25 here's what his lung looked like, I can give

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1 you an opinion.

2 Q. What you're saying is that you'd
3 need a lot more information than just those
4 two things that you talked to about -- to me
5 about before?

6 A. For a given individual, yes.

7 Q. Okay. So, maybe that's at the
8 crux of the misunderstanding, if there is
9 one, is that for those two things that you
10 needed, occupational exposure and lung
11 cancer, that's in order to testify
12 hypothetically as to a group, but not enough
13 for an individual, a specific individual,
14 unless you have more information?

15 A. That's correct, yes, sir.

16 Q. Okay. And what sort of more
17 information would you be interested in? Let
18 me give you an example. You would want to
19 know other occupational exposures they had,
20 correct?

21 A. That would help.

22 Q. You'd want to know intensity and
23 duration, wouldn't you?

24 A. Sure.

25 Q. You'd want to know latency

1 period, wouldn't you?

2 A. That would help, yes.

3 Q. You would want to know if it
4 was -- for instance, if they wore
5 respirators or other protective equipment?

6 A. Well, that may or may not help
7 me. I mean, you know, the -- you're getting
8 into points where I wouldn't -- I'm not
9 going to opine on what a respirator does or
10 doesn't do for a person. I don't know that.

11 Q. Well, assuming respirators work
12 perfectly, Doctor. You're willing to assume
13 a lot. Let's assume that respirators work.
14 Okay?

15 A. Fine.

16 Q. You would want to know what type
17 of fiber they were exposed to, would you
18 not?

19 A. Okay.

20 Q. Would you like to know whether
21 or not they were involved in heavy exertion
22 where they were working?

23 A. Well, you know, you're pointing
24 out a whole series of things which -- some
25 of which might help me, and others

1 wouldn't. I mean, I have no idea what
2 exertion would do to lung cancer, but -- and
3 the likelihood of getting cancer, but some
4 of the things that you've pointed out, I
5 think, would be helpful, sure.

6 Q. Would you want to know if they
7 had worked for ten years as someone who used
8 an electric saw on asbestos pipe covers and
9 then worked for the next ten years as a
10 sandblaster?

11 A. It's not going to change my
12 opinion as to whether or not asbestos caused
13 cancer or contributed to cancer in this
14 person, but, again, now, we'd have to go
15 through a number of different scenarios for
16 individuals.

17 Q. Okay.

18 A. And all of those things can help
19 one understand the disease.

20 Q. Okay. Doctor, let's take a case
21 where an individual were exposed to, oh,
22 let's say, chloromethyl ether, silica dust,
23 asbestos, and they smoked, and they develop
24 a lung cancer peripherally located, lower
25 lobe of one of their lungs. Is that enough

1 information -- well, first of all, would you
2 be comfortable in ascribing etiology to

3 any one of those potential risk factors, or
4 any of those risk factors?

5 A. What my opinion there would be
6 that they all contributed -- all -- all
7 would have add -- added carcinogens to the
8 respiratory system and increased the
9 likelihood of this person getting cancer.

10 Q. Doctor, what is your definition
11 of a risk factor?

12 A. It's an -- a factor that
13 increases risk.

14 Q. I meant maybe you could define
15 it without using the same words.

16 A. Well, it increases -- something
17 that increases the likelihood of a cancer
18 developing.

19 Q. Okay. When speaking of cancer.
20 All right. Would you agree that the four
21 things that I just mentioned in relation to
22 this hypothetical individual are risk
23 factors for the development of lung cancer?

24 A. I think I tried to say that by
25 indicating that they all contribute to the

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1 disease as risk factors, yes.

2 Q. Okay. And is it always going to
3 be your opinion that in the case of multiple
4 risk factors for the development of lung

5 cancer that each of the risk factors
6 contributed to the development of that lung
7 cancer?

8 A. Well, we're certainly getting
9 beyond my -- things that I'm going to give
10 testimony to, but, I mean, if you give me
11 lists of things that cause cancer, my -- the
12 fundamental concept is that if each one of
13 these things is getting to the target site,
14 the bronchial epithelium, they all can cause
15 genetic errors and, therefore, contribute to
16 the likelihood of getting the cancer.
17 That's my opinion. Now, one versus another
18 or some combinations of those things that
19 you've listed, I don't know that I would
20 really offer opinions on those as individual
21 carcinogens.

22 Q. Okay. All right. And maybe --
23 maybe we can shortcut some of this, and I'll
24 just ask you: Doctor, do you intend to
25 testify as to disease causation in either

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1 the group or in individuals in this lawsuit?

2 A. Well, I think so. I mean, you
3 know, I'm going to -- ask -- I'm going to
4 answer what I'm asked, and if I'm asked
5 about causation, I think I can give an
6 answer.

7 Q. Okay. Along the lines that

8 we've discussed?

9 A. Yeah, sure.

10 Q. Okay. Does it matter, Doctor,

11 in ascribing disease causation to smoking

12 whether or not they're a current smoker or a

13 former smoker?

14 A. It might, depending on how long

15 they'd stopped smoking.

16 Q. How long should they have

17 stopped smoking before you would no longer

18 ascribe causation?

19 A. Well, you know, if a person

20 hasn't smoked for 20 years, they're less

21 likely to be getting a cancer from that

22 smoke 20 years later.

23 Q. Okay.

24 A. But there still -- but there

25 still is some residual risk 20 years later.

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1 Q. Doctor, you're comfortable with

2 hypotheticals, so, let me offer you

3 another. An individual who has filed a

4 claim with the Johns-Manville Trust for lung

5 cancer, he alleges occupational exposure and

6 it's noted in his medical records that he is

7 a former smoker and he quit 20 years prior.

8 I assume -- well, let me just ask you --

9 what would you ascribe the causation of his

10 lung cancer to?

11 A. Well, that's a case where both

12 asbestos and cigarette smoke caused cancer

13 because the genetic errors that gave this

14 person cancer decades later occurred when he

15 was smoking and exposed to asbestos.

16 Q. Okay. How much smoking? Do

17 you know how much is required?

18 A. Same answer as before. I don't

19 know.

20 Q. Would a dozen cigarettes do it,

21 Doctor?

22 A. Oh, I don't think so, but I

23 don't know.

24 Q. But you don't know where the

25 cutoff is?

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1 A. I don't know.

2 Q. Okay. And it wouldn't matter

3 how long they were quit?

4 A. Well, no, because the

5 carcinogens that he was exposed to in smoke,

6 that occurred many times before he quit.

7 The risk of getting cancer goes down the

8 longer you've stopped smoking, but you don't

9 lose the risk at any time, as I understand

10 it.

11 Q. Well, what is your

12 understanding -- are you familiar with the

13 term "declining risk"?
14 A. Yes.
15 Q. What does that mean to you?
16 A. It's as I described, the longer
17 you're -- you've refrained from the use of
18 the carcinogen, the less likely you are --
19 the lower your risk over time, and it
20 continues to go down over time.
21 Q. Is that true with asbestos as
22 well?
23 A. Not apparently, because -- no.
24 No. I don't know that there's any declining
25 risk for asbestos.

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1 MR. DUNCAN:
2 Why don't we take a short
3 break.
4 THE VIDEOGRAPHER:
5 Off the record at 2:25.
6 (Whereupon, a discussion was
7 held off the record.)
8 THE VIDEOGRAPHER:
9 Return to record. It is
10 2:37. This is starting Tape 3.
11 EXAMINATION BY MR. DUNCAN:
12 Q. Dr. Brody, is it possible for a
13 person to be occupationally exposed, in
14 whatever definition you do or do not have

15 for that, to asbestos and never develop
16 asbestos-related disease?
17 A. Clinically, yes, but I would
18 expect that every person who's been
19 occupationally exposed has some changes in
20 their lung if you could go in and look at
21 it. But to answer your question, yes,
22 meaning that they would not come to the
23 clinic presenting with symptoms and disease.
24 Q. Okay. And, likewise, I take it
25 that everyone who is exposed to -- even

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1 occupationally to asbestos, you would not
2 expect that they would develop lung cancer
3 or asbestosis or even pleural disease?
4 A. Well, sure.
5 Q. Okay. And for cigarette smoking
6 as well, you wouldn't expect that every
7 smoker develops chronic bronchitis,
8 emphysema or lung cancer?
9 A. Right. Same answer. I mean,
10 anybody who smokes is going to have some
11 lung changes. You just can't avoid it. But
12 whether it's enough in that person to bring
13 them to the clinic, to a clinic is -- is
14 another issue.
15 Q. Permanent lung changes, Doctor,
16 for smoking?
17 A. There may or may not be. Again,

18 it's going to differ. I mean, you can --
19 yeah. Let me just leave it at that.
20 Q. Do you -- would it be correct to
21 say that you don't know the answer to that,
22 whether or not they're permanent?
23 A. It depends on the change. If a
24 person has focal emphysematous changes from
25 smoking cigarettes --

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1 Q. I'm sorry. I don't mean that.
2 A. Excuse me one second, because I
3 am answering your question.
4 Q. Okay.
5 A. So, if a person has -- has focal
6 emphysema from smoking cigarettes such that
7 it's not going to bring them to the clinic,
8 which is your question, in other words, they
9 didn't get sick and come to the clinic, but
10 it's disease process and it's not
11 reversible, okay --
12 Q. Okay, and I didn't mean to make
13 it quite that simple a question, which was
14 are permanent changes permanent. What I was
15 trying to ask you was: You mentioned
16 changes in a lung due to smoking. Is it
17 possible to smoke and have reversible
18 changes --
19 A. Yes.

20 Q. -- in the lung?
21 A. Yes.
22 Q. What are some of those
23 reversible changes?
24 A. Chronic bronchitis can reverse;
25 the accumulation of smokers' macrophages

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1 will clear. Those are two that are
2 reversible.
3 Q. Okay. And, in fact, doesn't
4 reversibility and repair underlie the
5 concept of declining risk?
6 A. Depends on the disease we're
7 talking about. If we're talking about
8 cancer, in part, repair of the airway wall,
9 it would be part of that, sure.
10 Q. Okay. What disease process are
11 we not talking about, emphysema, for
12 instance?
13 A. Correct. That's correct.
14 Q. All right. And I take it -- are
15 you aware, Doctor, that there are medical
16 records or, rather, claims records in this
17 case filed by individual claimants?
18 A. I have no idea one way or the
19 other.
20 Q. Okay. You didn't know? No one
21 had told that you?
22 A. That's right.

23 Q. Okay. And is that something
24 that, had you known about, you would have
25 wanted to see before writing any of your

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1 opinions?

2 A. No.

3 Q. Why not?

4 A. Because I'm not going to offer
5 opinions based on any medical records that I
6 see.

7 Q. Okay. So, even if they were
8 available to you, they would have sat right
9 next to that other box that you didn't look
10 at?

11 A. Exactly.

12 Q. Okay. Doctor, if a physician,
13 let's say, a pulmonologist, were to testify
14 that given the same information that you
15 had, and I'll give you the same
16 hypothetical, which is an individual whose
17 records stated that they were occupationally
18 exposed to asbestos, that they were
19 occupationally exposed to silica dust, and
20 that they were a smoker, or had been a
21 smoker, would a physician who testified that
22 they, given that information, would be
23 unable to discern which, if any, of those
24 carcinogens actually produced the lung

25 cancer in that individual, would that

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1 physician have a scientifically valid
2 position? Would that be a scientifically
3 valid position for that physician to take?

4 A. Let me make sure I understand.

5 In other words, there are three -- you named
6 three different carcinogens.

7 Q. Exposures.

8 A. Sure. Okay. Exposures to three
9 different carcinogens.

10 Q. Correct.

11 A. And the physician is saying he
12 can't tell which of those, if any of them,
13 caused the cancer in this person.

14 Q. In this particular individual,
15 based on the fact that there are three of
16 them.

17 A. Well, I guess that's one way to
18 look at it, but, I mean, I don't think
19 that's the correct way to do it. I mean,
20 the person has a cancer. Lung cancer in a
21 person not exposed to a carcinogen is rare.
22 So, if a person is exposed to several
23 carcinogens, I would think the appropriate
24 approach for a physician would be to say
25 that they increased the risk of this

1 person's getting cancer.

2 Q. Okay. And, again, you -- is it
3 safe to say -- and I don't want to
4 paraphrase you incorrectly here -- but is it
5 safe to say that your opinion is that no
6 matter how many lung carcinogens you're
7 exposed to, at the end of the day, when you
8 look at all of those exposures, in your
9 view, each of them contributes to that lung
10 cancer?

11 A. Well, they do, some more than
12 others, obviously, but -- but they all --
13 they all do, sure. I mean, they're there.
14 They're carcinogens by definition. They're
15 going to -- they're going to have the
16 capacity to cause genetic changes.

17 Q. Okay. And is every lung cancer
18 the result of an exposure to a carcinogen?

19 A. If it's -- no. I mean, there
20 are some idiopathic changes that can develop
21 because of internal errors, let's say, in
22 other words. So, the answer is no. I mean,
23 you can get spontaneous cancers from genetic
24 errors.

25 Q. Okay. So, let me give you that

1 same hypothetical. Unbeknownst to you in
2 that individual, the cause of their cancer
3 was a genetic error that had nothing to do
4 with the carcinogens they were exposed to,
5 but I take it that that is such a rare event
6 that you would never take it into account?

7 A. It's such a rare event, I
8 wouldn't know how to -- I wouldn't know how
9 to take it into account. And can mistakes
10 be made in diagnosis in establishing cause?
11 Sure. I mean, you just gave me a scenario
12 where you have three carcinogens a person is
13 exposed to and he gets a cancer, but now
14 you're able to go back in and find out that
15 he would have gotten it anyway without those
16 carcinogens. That's what you're saying to
17 me. Can that happen? Sure. And in that
18 case, was the doctor right that he didn't
19 know? Yes. But that sounds like a pretty
20 unusual setting to me.

21 Q. Okay. So, the idea that -- and
22 by the way, is this just for lung cancer or
23 is this for all cancers, as far as you're
24 concerned, that they're all caused primarily
25 by exogenous influences?

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1 A. Well, most cancers are caused by
2 exogenous influences.

3 Q. Okay.

4 A. There probably are some that
5 are -- I'm sure there are some that are not,
6 that are endogenous influences, I'm sure of
7 that, but lung cancer, in particular, is
8 most likely caused by exogenous influence.

9 Q. What do you think are the
10 exogenous influences in the development of
11 breast cancer?

12 A. Well, that's what I'm saying. I
13 think that, as I say, there are some that
14 are more likely caused by endogenous
15 influences, and I think breast cancer is one
16 of them, although --

17 Q. Ovarian cancer?

18 A. And ovarian cancer, probably,
19 the say same way. And whether or not breast
20 cancer is related to exogenous estrogens,
21 like environmental estrogens, that's one
22 theory that's out there. I don't really
23 know. We're not --

24 Q. What about brain cancer?

25 A. It's the same issue. These --

1 these organ systems that are not exposed to
2 the outside, obviously, have a great deal to
3 do with endogenous influences. How
4 exogenous influences could affect those
5 organ systems is not clear. It's not as

6 clear as it is in GI cancer or in lung
7 cancer.

8 Q. So, if it were not as clear to
9 you and you had some doubt, I take it that
10 you would not testify as to causation in
11 those organs to a reasonable degree of
12 medical or scientific certainty?

13 A. I wouldn't do that for other
14 organs, no.

15 Q. And the reason for that is
16 because you're not as sure?

17 A. I'm not as sure. That's not the
18 area that I pay much attention to -- as much
19 attention to.

20 Q. Okay. Let's talk briefly, if we
21 could, about the last sentence under Summary
22 of Testimony.

23 "He will explain how" -- "He
24 will explain how inhaled asbestos
25 fibers and cigarette smoke together

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1 increase the severity of asbestosis
2 and work in a synergistic fashion to
3 increase the risk of developing lung
4 cancer."

5 Okay. Doctor, before we --
6 before I ask you too many questions
7 substantive about it, could you please give
8 me your definition of "synergy"?

9 A. So, "synergy" is the
10 multiplication of effects from different
11 agents.
12 Q. Okay. Where do you obtain that
13 definition?
14 A. That's just sort of a working
15 definition from the dictionary or just
16 general use. I can't give you a specific
17 cite for that.
18 Q. But that's your understanding of
19 it?
20 A. Yes.
21 Q. Okay. Is synergy a biological
22 concept or a statistical concept?
23 A. I think it's both. Synergy is
24 where you have a biological effect and that
25 can be measured, and then you take two

220

1 separate agents that cause biological
2 effects and you multiply those measures and
3 you get a synergy, but statisticians deal
4 with those effects as well.
5 Q. Okay. Let's talk about, first
6 of all, the synergy, and you've mentioned a
7 couple of times, synergies. Do you
8 understand that in asbestos and cigarette
9 smoke, in those two exposures combined, that
10 there's more than one synergistic effect?

11 A. If I've used "synergies," it
12 might be that -- that there is more than one
13 explanation in trying to understand how the
14 synergy works, so, maybe that's what I
15 meant.

16 Q. Okay. But you don't think that
17 there -- that asbestos exposure and
18 cigarette smoke work together
19 synergistically other than in lung cancer;
20 is that correct?

21 A. That's correct.

22 Q. Okay. So, let's talk about that
23 for a moment. You use -- I think you -- I'm
24 not sure if you cite that in here. What do
25 you think is the synergistic effect between

221

1 cigarette smoking and lung cancer? Is there
2 a number associated with that?

3 A. The only numbers I know are the
4 ones that I've seen from the Federal
5 Register that have been generated in --
6 either from Dr. Selikoff's laboratories or
7 others like that. So, those are the --
8 that -- so -- I'm sorry. You asked me for a
9 number?

10 Q. Do you -- are you -- are you
11 going to testify that there is some number
12 associated with that synergy? Are you going
13 to quantitate the smoking and asbestos

14 synergy for lung cancer?

15 A. Well, only if I'm asked am I

16 familiar with these numbers that others have

17 generated, and I'm talking about now the

18 Selikoff or Hammond studies, whatever, and

19 yes, I've seen those.

20 Q. And what numbers are you

21 familiar with?

22 A. So, if you have -- if you're

23 exposed to asbestos alone, you have a

24 four- or fivefold increase over background

25 of getting lung cancer. If you smoke

222

1 cigarettes alone, it can be, I don't know,

2 ten or 20 percent risk of getting lung

3 cancer. And then if you are exposed to both

4 at lower pack years -- I don't remember just

5 what the pack years are -- you have

6 something like a fiftyfold increased risk of

7 getting cancer. And if you're in the upper

8 pack year history, you have up to an

9 eightyfold increase. Those are the numbers

10 I'm familiar with.

11 Q. Okay. Do you know how those

12 numbers were arrived at?

13 A. No, other than by epidemiology

14 and looking at the -- I mean, counting how

15 many people had the diseases and what their

16 habits were.

17 Q. Okay. The details that you
18 found unnecessary for your description or
19 for your testimony as to causation, do you
20 think an epidemiologist would need those
21 same numbers?

22 A. I would think so, yes.

23 Q. Okay. So, you would hope that
24 someone who did an epidemiologic study would
25 control for what sorts of things in a study

223

1 of synergy?

2 A. Well, you'd have to ask an
3 epidemiologist, but in my view, you'd have
4 to --

5 THE WITNESS:

6 I'm sorry. I forgot to shut
7 this off. I beg your pardon.

8 MR. DUNCAN:

9 Is it something you need to
10 take?

11 THE WITNESS:

12 No. This will take one
13 second.

14 A. Well, I would look for other
15 variables, I guess. I mean, I would look
16 for kinds of exposures the person had, I
17 would want to know how long they've been
18 smoking and under what conditions they were

19 working. You know, these are questions that
20 epidemiologists get to.

21 EXAMINATION BY MR. DUNCAN:

22 Q. Okay. Have you read, Doctor,
23 any of the studies that Dr. Selikoff worked
24 with or that others have studied as far as
25 synergy and lung cancer?

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1 A. Sometime ago. I mean, what I've
2 read are the most recent discussions on the
3 mechanisms of how p53 and cigarette smoke
4 can act on p53 and how the exposure to
5 asbestos and cigarette smoke increases the
6 likelihood of mutations in p53. Those are
7 the kinds of studies I've read in
8 relationship to synergy.

9 Q. Okay. And my question was have
10 you -- you mentioned that Dr. Selikoff had
11 done at least one study wherein he found
12 these large numbers of 50 and 80.

13 A. Right.

14 Q. Have you read the literature
15 that supports those numbers?

16 A. Sometime ago, I'm sure I did. I
17 haven't seen them recently.

18 Q. Okay. Have you read any other
19 literature subsequent to that concerning the
20 idea of synergy in the production of lung

21 cancer and -- from asbestos and cigarette
22 smoke combinations?
23 A. Not the epidemiologic
24 literature, no.
25 Q. As far as you know, then, the

225

1 numbers that are derived from Dr. Selikoff's
2 study are correct and sort of the last word
3 in epidemiology in that area?

4 A. Well, I don't know if it's the
5 last word, and I know that some other
6 epidemiologists that dealt with the issue,
7 and I've seen the papers over the years, but
8 I've not -- I have not looked at them as an
9 expert and dissected them and decided
10 whether or not they're right or wrong. I
11 mean, this -- the field kind of revolves
12 around those numbers, as I understand them,
13 but I don't know whether or not they're the
14 last word. I guess you would have to ask an
15 epidemiologist that.

16 Q. Would you agree that
17 epidemiology seeks to find associations that
18 then researchers, such as yourself, can look
19 at and figure out mechanisms for, to put it
20 simply?

21 A. I agree.

22 Q. Okay. So, to the extent that
23 there is a problem with the epidemiology,

24 you might -- if you were studying synergy,
25 you might be wasting your time if the

226

1 epidemiology is not supportable, correct?

2 A. It could happen, sure.

3 Q. Okay. So, wouldn't it -- are
4 you currently studying the synergy between
5 cigarette smoking and asbestos exposure in
6 the production of lung cancer?

7 A. No. What I'm studying is the --
8 is the function of the p53 gene, which, I
9 don't know if you want to talk about that,
10 but this is --

11 Q. We will.

12 A. Okay. But this is a gene,
13 obviously, that is very important in
14 controlling cell growth and DNA repair.
15 And, so, that's what I'm studying.

16 Q. Is part of the reason that
17 you're studying the p53 gene, is part of
18 that reason a way to explain synergy seen
19 epidemiologically?

20 A. Could be, yes. I mean, but
21 that's not why I'm studying it.

22 Q. Well, you don't care if there's
23 synergy or not?

24 A. I don't know why you say I don't
25 care. Of course, I care. The point is what

1 you can do as a scientist, what you focus
2 on. So, my focus is not on synergy. It's
3 on the function of the p53 gene and the
4 processes that we study.

5 Q. Okay. Is not part of what
6 you're doing to elucidate a mechanism for
7 what is seen epidemiologically as synergy?

8 A. Well, it could relate to that,
9 but I'm not asking questions about synergy
10 as we were talking about asbestos and
11 cigarette smoke. That's not what I'm doing.

12 Q. So, would it be fair to say then
13 that you are not going to testify as an
14 expert in synergy?

15 A. Well, it depends on the
16 questions that you ask. If -- I'm not an
17 expert in synergy as defined by
18 epidemiologists and how they measure
19 synergy. Am I an expert on how p53 and
20 cigarette smoke act in concert to produce
21 synergy? Yes. I mean, I know that
22 literature, and I brought some of the papers
23 to discuss, and I know -- and I'm doing
24 research on the p53 gene, but not in concert
25 in my own laboratory with cigarette smoke.

1 Other people do that.

2 Q. Okay. Well -- and you brought
3 up an interesting point, and let me see if I
4 can get more information on that. Are you
5 telling me today that there is a biologic
6 basis for the synergy seen, for instance, by
7 Selikoff between cigarette smoking and
8 asbestos exposure in the production of lung
9 cancer?

10 A. Well, I think there's a good --
11 there's a good hypothesis, yes.

12 Q. Well, earlier, you told me -- I
13 don't know if you used these exact words --
14 you were certain of the mechanism of
15 cigarette smoking and the production of
16 emphysema. You didn't think there was much
17 doubt about that.

18 A. At the level that I was talking
19 about, that -- that there's an imbalance in
20 elastase, yes, but then I didn't say -- but,
21 certainly, there are more questions to be
22 answered on that mechanism.

23 Q. Are you to the same point with
24 the synergy, the biologic synergy, as you
25 put it, between cigarette smoking and

1 asbestos exposure in the production of lung

2 cancer?

3 A. No. I think there are many more
4 questions to be answered in that regard.

5 Q. Okay. Does your model -- or let
6 me ask it this way. You gave numbers of 50
7 and 80 for your model, or for the model that
8 you believe exists for cigarette smoking,
9 asbestos exposure in the production of lung
10 cancer. I take it you're referring to
11 relative risk numbers?

12 A. Right.

13 Q. Okay. Does your model, your
14 biologic model, of synergy support those
15 numbers?

16 A. I don't think they are designed
17 to do that. I can only answer no because we
18 don't know how the specific mechanisms that
19 are being studied right now would translate
20 to those numbers. They could. I mean,
21 look, as you pointed out, that
22 epidemiologists find numbers and the -- and
23 the basic scientists try to understand the
24 mechanisms. The mechanisms, once they're
25 understood, may very well translate to the

230

1 epidemiology, but at this point, I think
2 they are too separate to be able to do that.

3 Q. Okay. Does it matter to you
4 what the latest epidemiologic studies are

5 between -- concerning cigarette smoking and
6 asbestos exposure in the production of lung
7 cancer in individuals? Does it matter to
8 you?

9 A. Well, it matters in the sense
10 that I would like to know what the numbers
11 are, but it's not going to matter to me in
12 my testimony.

13 Q. Okay. What does it mean,
14 Doctor, for -- in an epidemiologic study for
15 something to depart from the additive
16 model? Does that have any particular
17 meaning to you?

18 A. No.

19 Q. And if it departs from a
20 multiplicative model, does that have any
21 meaning to you?

22 A. No.

23 Q. Okay. Does whether or not a
24 study --

25 A. I'm sorry to interrupt you.

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1 Unless -- if we're just talking
2 about in the simplest form, additive, which
3 is nonsynergistic, versus multiplicative,
4 which is, and we're talking about that,
5 then, I can just explain it in layman's
6 terms.

7 Q. I just want -- it was just a
8 question as it was.

9 A. Yeah. I mean, if that's what
10 you're talking about, the statisticians or
11 epidemiologists do those sorts of things,
12 but what it means to me -- that's what it
13 means to me. It's not something I do.

14 Q. So, if you knew that a study did
15 not significantly depart from the additive
16 model, what would that mean to you?

17 A. Well, it would mean that it was
18 consistent with the data that said that some
19 data -- that some information or statistics
20 were additive, that the new study, whatever
21 it is that you said, was consistent with an
22 additive model.

23 Q. And what would that mean as far
24 as synergy?

25 A. So, that would say it's not

232

1 synergistic.

2 Q. Okay. Is there a difference
3 between interaction and synergy?

4 A. I'm not sure how you do that. I
5 mean, in order to have synergy, you have to
6 have some kind of interaction.

7 Q. Okay. But is there a difference
8 between the two?

9 A. Well, interaction is just the

10 event, and whether or not the interaction
11 will be additive or synergistic, I guess,
12 depends on what the nature of the
13 interaction is.

14 Q. So, if you have two carcinogens,
15 and let's say that they operate in different
16 ways on the organism or the target organ,
17 each can produce lung cancer but via a
18 different pathway, how would you describe
19 those two carcinogens with respect to one
20 another?

21 A. I'm really not sure what -- what
22 the question is. So, you have two separate
23 carcinogens. They have two different
24 mechanisms of causing cancer.

25 Q. Correct. And you're exposed to

233

1 them both.

2 A. All right.

3 Q. Is there a way to describe each
4 of those carcinogens in relation to one
5 another?

6 A. Independent, I guess.

7 Q. They would be independent?

8 A. Could be.

9 Q. Okay. And if they didn't work
10 together to produce more cancer, you're
11 saying that they would not then be

12 synergistic; is that right?

13 A. No, I didn't say that. No. I

14 mean, why not? I mean, they could be

15 synergistic. You can have two independent

16 mechanisms which increase -- which are

17 synergistic in the sense that you get more

18 cancers than either one does alone. I don't

19 know why they would be -- I don't know why

20 one would preclude the other.

21 Q. Is that -- is that your

22 definition, that if the two act to produce

23 more cancers than either one alone, that

24 that's synergy?

25 A. Yes. If you can multiply the

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1 effects of each one of those alone, then,

2 the multiplicative effect is synergy.

3 Q. Okay. So, synergy has to be

4 multiplicative; is that your view?

5 A. That's what I understand.

6 Q. Okay. If two exposures together

7 produced, to use your words, fewer than the

8 expected -- or fewer than either one alone,

9 what would you call that relationship? So,

10 you have exposure to two separate -- they

11 are two separate exposures, and either one

12 of them produces X amount of cancer, but

13 together, they produce less cancer than

14 that, what would you -- what would you --

15 how would you refer to that relationship?
16 A. I don't know if there's a
17 technical word for it.
18 Q. Have you ever heard of the term
19 "antagonism"?
20 A. Sure.
21 Q. Okay. Assuming that there were
22 statistical data that showed two exposures
23 acted apparently synergistically, whatever
24 that definition means to you, in the
25 production of some disease end point,

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1 describe to me how you as a researcher would
2 go about verifying that what is -- appears
3 to be a -- an epidemiologic phenomenon is
4 also a biological phenomenon.
5 A. Well, the best way to do that is
6 to develop an animal model that would -- in
7 which you could expose the animals to those
8 independent carcinogens and study the
9 likelihood of the cancers developing. You
10 could do that in vitro as well, looking at
11 whether or not there were more DNA-damaging
12 events, for example, with both of the --
13 with both of the agents being used. I mean,
14 those are two approaches that could be done.
15 Q. Doctor, what animal studies have
16 been undertaken to determine whether or not

17 cigarette smoke and asbestos operate
18 synergistically to produce lung cancer?
19 A. I don't know that any have been
20 successful at doing that. People may have
21 tried. I don't know that there have been
22 publications that have done that. The --
23 I'm not sure if that's been accomplished.
24 Q. Doctor, would it be fair to say
25 then that you will not be testifying as an

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1 expert that -- that other than what you've
2 read from Dr. Selikoff and what you've read
3 in texts, that you have any personal
4 expertise in whether or not there is synergy
5 in the production of lung cancer based on
6 the exposures to cigarette smoke and
7 asbestos?
8 A. No, I don't think that's fair.
9 There are a number of studies that show that
10 in people who are -- a number -- there are a
11 few studies that show that people who are
12 exposed to asbestos and to cigarette smoke
13 have increased errors in certain genes that
14 would explain synergy, that the mechanisms
15 through which asbestos and cigarette smoke
16 cause damage in genes like p53, tumor-
17 suppressor genes, that those studies speak
18 directly to that process, and I would be
19 prepared to testify that that would be a

20 reasonable mechanism for explaining those
21 data.
22 Q. Okay. In order to so testify,
23 would it be helpful to have a knowledge of
24 what the synergy literature is?
25 A. Sure.

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1 Q. All right. Which you don't have
2 right now?
3 A. Well, the epidemiologic
4 literature, I would say that I'm not the
5 expert to deal with on that, right. So, I
6 will not testify as to the epidemiologic
7 literature on synergy, that's right.
8 Q. Right. Well, then, explaining a
9 mechanism then or elucidating a mechanism
10 that explains literature that you're not
11 familiar with is not going to be helpful,
12 correct?
13 A. Well, it may not be helpful to
14 you, but, I mean, you know, if you ask me
15 how -- what the mechanism is through which
16 asbestos and cigarette smoke causes DNA
17 damage, if that's the question that I'm
18 going to be asked, I can testify to that.
19 Q. So -- and, again, I don't want
20 to incorrectly paraphrase you -- what you're
21 saying is while you don't know the most

22 current synergy epidemiology, you do have an
23 hypothesis about what could cause synergy?
24 A. Well, there are some very
25 excellent papers in the biomedical

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1 literature that describe errors that develop
2 in key genes that control cell growth, and
3 that's part of the postulate, that's right.
4 That's where we are now. And these are very
5 reasonable studies that are helping us
6 understand how synergy can develop.

7 Q. Or whether indeed there is
8 synergy, correct?

9 A. That -- well, whether or not
10 there is synergy is an epidemiologic
11 question at a certain level, and the degree
12 to which that's been answered and proven and
13 satisfied, I suppose, is up to
14 epidemiologists and industrial hygienists to
15 establish.

16 Q. And am I correct that you do not
17 know of any animal model that has
18 demonstrated biologic synergy between
19 cigarette smoke inhalation and exposure to
20 asbestos?

21 A. Right.

22 Q. Okay. And you're not sure if
23 any have been attempted?

24 A. I don't know if any have been

25 attempted.

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1 Q. Okay.

2 A. I mean, there are -- if I could
3 just -- you know, Andrew Churg has done a
4 series of studies in which he showed
5 increased retention of fibers in animals
6 that smoke. Now -- so, that's an attempt to
7 get at some of the synergistic issues. He
8 uses, also, explant studies from airways to
9 show that cigarette smoke causes increased
10 fiber retention. He's shown in humans that
11 people who smoke have increased fiber
12 retention. I mean, so, there's a good basis
13 for helping us understand synergies, should
14 it exist as being defined by the
15 epidemiologist. I mean, that's my
16 understanding as I hurry through the years.

17 Q. Okay. But you don't know of any
18 studies that demonstrate biologic synergy
19 between cigarette smoking and asbestos
20 exposure?

21 A. That's right.

22 Q. Do you know of any biologic
23 studies that -- or any animal studies that
24 prove biologic synergy with any two or three
25 compounds?

1 A. I'm not sure. I don't think
2 so. They must be there. You're talking
3 about in other literature?

4 Q. In other literature, in other
5 disease end points, anything.

6 A. I'd have to go and look.

7 Q. Any leukemia studies using
8 benzene, are you familiar with any of those?

9 A. You know, I'm sure they're
10 there, but I'm just not --

11 Q. You're not familiar with it?

12 A. I'm not familiar with it.

13 Q. Before you testify that there is
14 such a thing as synergy, is it enough for
15 you to testify as to the epidemiology
16 regardless of how current or whatever that
17 is, or would you like to have an animal
18 model to support your testimony?

19 A. I'd like to have an animal model
20 for a lot of things, but cigarette smoke is
21 so toxic that it's hard to induce the kinds
22 of tumors in animals that you get in
23 people. You just can't give them a high
24 enough concentration for a long enough time
25 in their short lives to produce the kinds of

1 cancers that we'd like to get. Animal
2 models for getting lung cancers have been
3 difficult to deal with. And just now, there
4 are good mouse models of lung cancers. Just
5 at the American Thoracic Society just this
6 last week was a featured poster of a mouse
7 model of lung cancer in which benzo(a)pyrene
8 had been administered to the lung with a
9 defective p53 gene and these animals got
10 increased cancers. Now -- and all of these
11 things speak to synergy and speak to how --
12 the mechanisms through which carcinogens
13 cause cancer. Is the perfect model there
14 for demonstrating synergy for asbestos and
15 cigarette smoke? No.

16 Q. Okay. Well, thank you for the
17 long answer, Doctor. As your -- as part of
18 that, that answer, you mentioned that
19 cigarette smoke is so -- so toxic that if
20 you give it in amounts large enough to give
21 the animal cancer, you also kill it; was
22 that your testimony?

23 A. I didn't say kill it, but --

24 Q. Prevent an appropriate dose from
25 being given?

1 A. I think that's right. I have
2 seen smoking studies done with animals,

3 rats, and with -- and guinea pigs, and it's
4 an extremely irritating material, and my
5 experience in seeing these experiments is
6 that the animals are very uncomfortable and
7 I don't think would last very long. I mean,
8 I haven't done these experiments myself, so,
9 I don't know just how long you can do it,
10 but from what I've observed, I would think
11 it would be very difficult to do, and it
12 probably explains why there are not good
13 models right now. I mean, the human model
14 seems to be the best one.

15 Q. Right. You're not -- you're not
16 saying that human smoking is a good model
17 for -- I mean -- for studying smoking, are
18 you?

19 A. No. What I'm saying is the
20 experiment has been done in people. I mean,
21 people have been smoking for a long time and
22 have the diseases to show.

23 Q. Would the human smoking
24 experience qualify under the kind of
25 parameters you'd want in an animal study,

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1 short of -- short of checking them, you
2 know, by doing other animal experiments on
3 them, but as far as controls and pathogen-
4 free environments and lack of confounding
5 and that sort of thing, is that -- human's

6 just as good as laboratory tests?

7 A. That's what the epidemiologists

8 have to do, is sort out the confounders and

9 establish whether or not a particular agent

10 has caused disease, and cigarette smoking is

11 shown to be just that, a disease-causing

12 agent.

13 Q. Well, if epidemiology is that

14 good, why do you do animal experiments,

15 Doctor?

16 A. Well, that was a silly

17 question. I mean, we all do -- we all do

18 our own things. I mean, why are you an

19 attorney and not a doctor? You know, we all

20 do our own things.

21 Q. That's your answer?

22 A. You asked me why I'm -- why

23 I'm -- why I'm a scientist and -- why I'm a

24 basic scientist and not an epidemiologist?

25 Q. No.

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1 A. Why didn't you ask me why I'm

2 not an industrial hygienist?

3 Q. I didn't ask you any of those

4 questions. What I asked you was: If the

5 epidemiology is so good that they can

6 eliminate all the confounders, why are we

7 still doing animal studies?

8 A. Oh, I didn't hear that
9 question. I'm sorry if I misunderstood it.
10 The epidemiology is good enough to establish
11 what causes disease, and the animal studies,
12 as you indicated earlier, establish the
13 mechanism so that you can provide -- so that
14 you can come up with therapeutic approaches
15 and ways to block the process.

16 Q. So, let me see if I understand
17 that. So, epidemiology is still the science
18 that points to associations, and the work
19 you do elucidates mechanism?

20 A. I agree.

21 Q. Okay. So, in humans, you still
22 want to do animal studies that, as much as
23 you can, mimic the human condition so that
24 you can find mechanism in a human without
25 doing human experimentation, right?

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1 A. I agree.

2 Q. Okay. So, the epidemiologists,
3 as good as they are, have not been able to
4 do that with statistical science, correct?

5 A. That's true.

6 Q. Okay. Doctor, I asked you
7 earlier if you were aware of any studies
8 that attempted to -- to prove a biologic
9 basis for synergy, and you replied that you
10 had not, that you had not read any. If I

11 were --

12 A. I'm sorry to interrupt you. I

13 don't think that's quite right.

14 Q. Oh, you have read some where

15 they attempted to --

16 A. Biological basis for synergy?

17 Sure.

18 Q. That have proven it --

19 A. Well --

20 Q. -- or demonstrated it?

21 A. You're asking -- you're asking

22 different questions and you're stating

23 things that are not correct.

24 Q. Okay.

25 A. You asked me has the mechanism

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1 been proven through which synergy develops,

2 and I say no. There are postulate --

3 there's a postulate and there are -- there

4 is a biological basis for understanding it,

5 and there are papers that exist for that,

6 and some of them are right here.

7 Q. No. You misunderstood, and

8 perhaps that's my fault.

9 A. Okay.

10 Q. I didn't ask you if -- although,

11 that's certainly a question I would ask, in

12 fact, I probably will, ask you if there is a

13 specific mechanism shown. What I asked you
14 was had -- had there been a -- had biologic
15 synergy been demonstrated, that is, you do
16 it -- an experiment with a lab animal
17 wherein the animal is exposed to both
18 cigarette smoke and asbestos fibers, and
19 they develop lung cancers at a rate that
20 would satisfy you that synergy existed.

21 A. Right. That's the scenario
22 where I don't think anything like that
23 exists, right.

24 Q. Exists. And -- and what you
25 thought had been done was -- were

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1 experiments where it was demonstrated that
2 asbestos fibers were retained at higher
3 levels in the lungs of smokers compared to
4 nonsmokers?

5 A. That's right, humans and
6 animals. That's correct.

7 Q. Right. And that would be
8 getting at a mechanism, but that experiment,
9 in your mind, as far as I can tell from your
10 testimony, did not demonstrate synergy?

11 A. That's correct, and then it goes
12 on. There's also another series of papers,
13 so, when you ask me, have I read papers
14 which describe the biological basis, which I
15 thought was your question, I said, yes,

16 there are papers that could describe the
17 biological basis. That's -- that's all I'm
18 trying to say.

19 Q. Okay. Does exposure to low
20 levels of ozone cause increased retention
21 experimentally of asbestos fibers in lungs
22 of animals?

23 A. Yes.

24 Q. Okay. Is -- would you imagine
25 then that there should be a synergistic

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1 effect between exposure to ozone and
2 exposure to asbestos?

3 A. Whether -- I'm not sure you --
4 is that the question?

5 Q. Is there a -- I'm sorry if I
6 misstated. Is there -- is there a
7 synergistic effect between exposure to ozone
8 and the exposure to asbestos in the
9 production of lung cancer?

10 A. Okay. I didn't hear that
11 question a second ago.

12 Q. Okay.

13 A. Well, not that I know of. I
14 mean, again, that would be sort of at one
15 point an epidemiologic question to sort out,
16 and there may very well be. I don't know
17 that.

18 Q. Okay. Let me -- let me ask you
19 now about Paragraph Number 2:
20 "Inhaled asbestos fibers
21 deposit initially along all aspects
22 of the respiratory tract. Fibers
23 that land upon a normal mucociliary
24 escalator will be moved to the mouth
25 in a rapid clearance phase. Those

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1 fibers that pass through the airways
2 and deposit on the alveolar surfaces
3 can be dealt with in several
4 ways..., " and we'll go through those.

5 Where in the lungs is the
6 mucociliary escalator located?

7 A. Well, it starts in the back of
8 the throat and goes all the way down the
9 conducting airways.

10 Q. Okay. And, so, let's get to the
11 area of the respiratory bronchioles. Are
12 those ciliated or nonciliated?

13 A. Well, you have both ciliated and
14 nonciliated cells.

15 Q. Okay. So, it's more patchy
16 through there than in the rest of the lung?

17 A. That's right.

18 Q. Okay. So, how good is the
19 mucociliary escalator in the terminal or
20 respiratory bronchioles?

21 A. Not as good as in the terminal
22 bronchiole.
23 Q. Okay. Now, does mucociliary
24 escalator, do the cilia actually come in
25 contact with the fiber, or do the cilia

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1 merely serve to move a mucus blanket along,
2 or is it both?

3 A. Yeah, you could have both.
4 There are areas where -- where there is no
5 mucus. It's not a continuous blanket.

6 Q. Okay. And, Doctor, is the
7 mucociliary escalator an effective means of
8 clearing fibers?

9 A. In a normal lung, yes.

10 Q. Okay. Is it as effective with
11 fibers as it is with other things, such as
12 dust, bacteria?

13 A. Seems to be, yes.

14 Q. So, fibers present no special
15 problem to the mucociliary escalator as far
16 as clearance?

17 A. Depends on their size. Fibers
18 can offer very difficult problems. If
19 they're very long, they're not as easily
20 cleared.

21 Q. Okay. Why is that?

22 A. They -- if they're very long,

23 they have -- more likely to become entwined
24 with the cell services. They're just --
25 physically, they're -- the lung has a more

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1 difficult time dealing with longer fibers.

2 Q. Okay. Would you agree with the
3 statement that the lung -- the asbestos
4 fibers that caused the most problem, that
5 is, are more related to asbestosis, are
6 those that make it to the alveoli?

7 A. Sure.

8 Q. Okay. And that the fibers that
9 stop somewhere on the mucociliary escalator,
10 regardless of whether they're cleared by
11 that escalator, are not going to be
12 important in the production of asbestosis?

13 A. Well, you're missing a step
14 there because fibers that reach the alveolar
15 surface and participate in the development
16 of asbestosis can be cleared at some point
17 later in life up the escalator and can
18 interact with cells of the airways.

19 Q. Exactly. And my question was,
20 just to make sure I understand your view,
21 that asbestos fibers that are thought to be
22 involved in the production of asbestosis are
23 those fibers that make it all the way out to
24 the alveoli, correct?

25 A. Yes.

1 Q. Fibers that land on an area of
2 the lung -- let's say a bronchus, where
3 either there is or is not, in effect, a
4 mucociliary escalator, those fibers that
5 land there do not play a role in the
6 development of asbestosis --

7 A. I agree.

8 Q. -- whether or not they're ever
9 cleared?

10 A. I agree.

11 Q. Okay. And I just want to
12 understand, it's not your view that somehow
13 if they sit on a mucociliary escalator that
14 is under repair and is no longer moving up,
15 for whatever reason, it's not that they're
16 going to slide back down and find their way
17 into an alveolus?

18 A. I doubt that very much.

19 Q. Okay. And, so, you would agree
20 that the fibers that reach the alveoli or
21 the alveolar duct bifurcations are carried
22 there by air currents?

23 A. Yes.

24 Q. Okay. Let's talk for a minute
25 about retained asbestos fibers, which you

1 discuss.

2 MR. DUNCAN:

3 Can we go off the record for a
4 minute?

5 THE VIDEOGRAPHER:

6 Off the record, 3:27.

7 (Whereupon, a discussion was
8 held off the record.)

9 THE VIDEOGRAPHER:

10 Return to the record; it is

11 3:37.

12 EXAMINATION BY MR. DUNCAN:

13 Q. Okay. I think I was about to
14 ask you about fiber retention. Now, if we
15 could, picture the lungs in terms of surface
16 area. Would you agree, Doctor, that the
17 surface area of the conducting airways
18 comprises about one percent of the total
19 surface area of the lung?

20 A. That's right. It's a very small
21 percentage.

22 Q. Okay. On a percentage basis,
23 where in the lung are most of the asbestos
24 fibers which are inhaled retained?

25 A. In the gas exchange area of the

1 lung.

2 Q. Okay. And what sort of a
3 percentage on retention compared to the
4 conducting airways?

5 A. I don't know that that's ever
6 been established. Probably close to the
7 surface area involved. I would guess less
8 than -- I hate to guess, but I would guess
9 less than five percent. I'm not really
10 sure. I don't think anyone has ever
11 established that.

12 Q. Would you be surprised if it
13 were .1 percent?

14 A. I don't know that anybody has
15 done that.

16 Q. Okay. Would you be surprised at
17 that number, .1 percent is retained in
18 the --

19 A. Yeah. I have no reason to be
20 surprised or not. I don't know that that
21 number is available.

22 Q. Okay. Well, I guess it doesn't
23 matter if the number is available or not.
24 Would that number surprise you or not,
25 whether or not it's available?

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1 A. No, it wouldn't surprise me.

2 Q. Okay. All right. And would you
3 agree that this retention ratio, whatever it

4 is, the fact that by a huge proportion, most
5 is retained in the parenchyma of the lung,
6 is that true in smokers and nonsmokers?

7 A. Yes, except for the caveat
8 that -- that the airways of cigarette
9 smokers retain more fibers than the airways
10 of nonsmokers, but I don't know if that
11 would change the percentage in any way.

12 Q. Okay. Or the proportion?

13 A. Right.

14 Q. Okay. And let's focus for a
15 moment on asbestosis, and I think you told
16 me a moment ago that the fibers we care
17 about in the production of asbestosis are
18 the fibers that make it to and cause damage
19 to the alveoli, to the very, very distal
20 lung?

21 A. That's right.

22 Q. Okay. And that fibers retained
23 in the conducting airways do not contribute
24 to the development of asbestosis?

25 A. Right.

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1 Q. Okay. And would you agree that
2 in the smokers and nonsmokers, both, that
3 asbestosis is caused by asbestos fibers?

4 A. Sure.

5 Q. Okay. And that in the absence
6 of asbestos inhalation, by definition, there

7 could be no asbestosis?

8 A. I agree.

9 Q. Okay. Doctor, is it your

10 opinion that cigarette smoking impairs the

11 clearance of asbestos fibers from the

12 parenchyma of the lung?

13 A. I don't -- I'm pausing because

14 the only data I know about clearance and

15 retention in smokers relates to the

16 airways. I don't know that it's been

17 established that cigarette smoking impairs

18 clearance from the parenchyma, which, I

19 believe, is what you just asked me. So, I

20 really can't say. Now, with -- let me back

21 that up with data. Now, if I had to draw

22 assumptions based on what I know about

23 what's going on in the lung, I think that

24 there probably would be increased retention

25 in the walls of the lung, but I -- again, I

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1 just don't know that that's -- I don't know

2 that that's true.

3 Q. At this point, that would be

4 speculation?

5 A. It would, yes.

6 Q. All right. What is your basis

7 then for asserting that cigarette smoking

8 increases -- and if this is not correct, let

9 me know -- increases the incidence and
10 severity of asbestosis?
11 A. There is some clinical studies
12 in the "American Journal of Respiratory and
13 Critical Care Medicine" -- and I don't know
14 that I reference that or not. I guess I
15 didn't. But there is a clinical study of
16 maybe about a year ago, or two years ago,
17 that described increased severity of
18 asbestosis in cigarette smokers, and I think
19 there's some epidemiology that shows that as
20 well. I think Dr. Becklake did some of
21 that.

22 Q. And how is that severity
23 measured, Doctor?

24 A. These were clinical criteria for
25 asbestosis.

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1 Q. What are the clinical criteria
2 for asbestosis?

3 A. Shortness of breath, radiology
4 findings, history of exposure, restrictive
5 disease.

6 Q. What are the radiologic findings
7 necessary to show asbestosis, do you know?

8 A. Well, they're typically
9 linear -- linear opacities, shadows that
10 predominate in the lower lobes, that sort of
11 thing.

12 Q. Are you aware that the American
13 Thoracic Society has a set of guidelines
14 that they find necessary to diagnose
15 asbestosis?

16 A. Right. I do -- I am, and I
17 think I named, if not all of them, many of
18 them, several of them.

19 Q. Do you know what the initials
20 "ILO" stand for?

21 A. Yes.

22 Q. What do they stand for?

23 A. International Labor
24 Organization.

25 Q. And what is its relevance to

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1 asbestosis?

2 A. Well, they have a series of
3 standardized radiographs that they use to
4 establish levels or degrees of disease.

5 Q. Okay. And how do they do that?
6 What are the standards looking for? Or what
7 does a radiologist look for when using the
8 ILO standards?

9 A. He's looking for the regions of
10 the lung that are affected and the degree of
11 opacities, and gives them numbers.

12 Q. Okay. You don't -- you don't
13 know any of that, though, do you, which

14 specific numbers they're looking for or
15 what --
16 A. No.
17 Q. Okay. And, so, and I take it
18 you do not know when you just said clinical
19 studies that showed that asbestosis was more
20 severe in smokers, you are not -- you're not
21 looking at any particular clinical finding
22 from those studies to support your --
23 A. I'd have to go back and look at
24 the paper as to just exactly which clinical
25 studies were used to draw those conclusions.

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1 Q. Okay. Assuming that there is a
2 clinical study that shows asbestosis is more
3 severe in smokers than nonsmokers, I take it
4 by your earlier testimony here today that
5 you do not have a proposed mechanism for why
6 that should be the case?
7 A. I have a proposed mechanism, but
8 I don't have an established mechanism.
9 Q. Okay. All right. Fine. And
10 let's -- let's -- how about we restrict it
11 to areas where you would feel comfortable
12 swearing that to a reasonable degree of
13 medical scientific -- medical or scientific
14 certainty that this were the case?
15 A. Yes. I couldn't do that for
16 this process.

17 Q. Okay. So, as I understand it,
18 you will not be testifying that cigarette
19 smoking and asbestosis or -- I'm sorry --
20 that cigarette smoking and exposure to
21 asbestos result in more severe or aggravated
22 asbestosis other than you'll say that I've
23 read some studies out there?

24 A. That's right. I would do that,
25 sure --

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1 Q. Okay.

2 A. -- because they are there.

3 Right.

4 Q. Okay. But you're not going to
5 say that you know that to be the case from
6 your studies?

7 A. That's correct.

8 Q. Okay. And suffice it to say
9 that you've read studies or you've heard of
10 studies that report more severe disease, but
11 that you have no mechanism that you can say
12 this is what causes it or what caused it?

13 A. That has been established,
14 that's correct.

15 Q. Okay. Is it your opinion that
16 cigarette smoke causes lung fibrosis?

17 A. In certain regions of the lung,
18 yes.

19 Q. Would you agree, in certain
20 persons, in certain regions of the lung?
21 A. Yes.
22 Q. Is that a common finding,
23 Doctor?
24 A. No.
25 Q. Is that -- would you agree that

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1 it would be extremely rare?
2 A. I don't know enough about the
3 actual numbers to say extremely rare. I
4 mean, I've seen --
5 Q. How about just rare?
6 A. Rare? Yes, I'd say rare.
7 Q. Okay. Let me ask you -- let's
8 see if we can go through this. Let's go to
9 Number 6.
10 "Inhaled cigarette smoke
11 damages the mucociliary escalator and
12 apparently reduces the clearance
13 capacity of the lung."
14 Doctor, are you aware of any
15 studies that show that in some smokers there
16 is increased clearance of particles in the
17 lung?
18 A. In cigarette smokers?
19 Q. In cigarette smokers.
20 A. I'm not familiar with that.
21 Q. Okay. And is it your -- first

22 of all, have you ever studied in animal
23 models the phenomenon of ciliastasis?
24 A. No.
25 Q. Have you read any of the

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1 models -- read any of the studies that use
2 animals to study that? Have you read any of
3 those studies?
4 A. Not animals, but explants. In
5 other words, explants of bronchial tissue
6 and tracheal tissue.
7 Q. Okay. And what is your
8 understanding of the process of ciliastasis
9 as it relates to cigarette smoke?
10 A. Well, cigarette smoke has
11 components, I guess, some of the -- of the
12 gases that cause the cilia to slow down or
13 stop when they're exposed.
14 Q. Is that a permanent condition?
15 A. No, I don't believe so.
16 Q. Okay. So, when a person stops
17 smoking, ciliary action recommences?
18 A. Yes. I guess it depends on --
19 on how -- how much damage has been done. I
20 mean, if you lose the ciliated cells and
21 replace by a squamous metaplasia, then, it
22 would take longer for those cells to
23 regenerate and normal -- and normal function

24 ensue, but if it's an issue of the smoke
25 causing ciliastasis and then there is no

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1 smoke, the cilia start up again, yes.

2 Q. Okay. What -- what is your
3 understanding about what compounds, and now
4 we're not talking about cigarette smoke, but
5 just what other compounds or exposures can
6 cause ciliastasis?

7 A. I'm not really sure. I don't
8 think I can give you a list of things that
9 are known to cause ciliastasis. I can't do
10 that.

11 Q. Okay.

12 A. I mean, I know of one, teargas,
13 acrolein, I think, does that, but I'm not
14 really sure.

15 Q. Then, I take it you would not
16 also know what compound in cigarette smoke
17 is thought to cause ciliastasis?

18 A. I don't know.

19 Q. Okay. You mentioned ciliastasis
20 and squamous metaplasia in the same
21 sentence. Is it possible to have
22 ciliastasis without having squamous
23 metaplasia?

24 A. Oh, sure.

25 Q. Okay. Is squamous metaplasia

1 reversible?

2 A. Yes.

3 Q. And, as I suppose you just
4 mentioned, likewise, is just ciliastasis?

5 A. Is reversible, yes.

6 Q. Right. If -- if you have
7 asbestos fibers that are lying on this mucus
8 blanket during a period of ciliastasis, is
9 it your opinion that once the cilia have
10 resumed the normal beading, that those
11 particles will be moved up the escalator?

12 A. Yes. If they don't hit a patch
13 of squamous metaplasia where they're taken
14 up and incorporated into the airway, into
15 the airway wall, right. But if they're just
16 continuing to sit on the mucus blanket, when
17 the cilia start again, they'll probably be
18 moved up, yes.

19 Q. Okay. In smokers who have
20 chronic bronchitis, as you described it, as
21 an overproduction of mucus, would you expect
22 those smokers, those persons to have a
23 thicker mucus blanket in their airways?

24 A. In patches, that's the way it
25 appears, yes.

1 Q. How much smoking does it take to
2 cause squamous metaplasia?

3 A. That's one of those questions
4 that's going to -- the answer's going to
5 vary amongst individuals, I'm sure. I
6 can't -- I can't tell you.

7 Q. Do all smokers get squamous
8 metaplasia?

9 A. I don't know about all, but I --
10 I think many do. There's a study -- one of
11 the studies I've included here describes
12 some of the early lesions in cigarette
13 smokers and describes the squamous
14 metaplasia and some of the genetic errors
15 that are occurring in those diseases, but --
16 in that disease, but just how many get it
17 and how much smoking it takes, I'm not sure.

18 Q. Doctor, when a person inhales
19 asbestos fibers, do those fibers deposit all
20 along the tracheobronchial tree?

21 A. Yes. It says that somewhere
22 here, but yes.

23 Q. All right. Does that include
24 the nasal cavity?

25 A. Yes. "Inhaled asbestos fibers

1 deposit initially along all aspects of the
2 respiratory tract." Yes, including --

3 Q. Including the mouth?

4 A. Yes, sir. The back of the
5 mouth, yes. Oh, of course, if you're
6 inhaling through your mouth, sure.

7 Q. Would a person who smoked pipes
8 or cigars and didn't inhale, would they be
9 at an increased risk then of having asbestos
10 fibers if they were so exposed embedding
11 themselves in the epithelium of the oral
12 cavity?

13 A. I don't know that anybody has
14 ever measured retention of fibers in the
15 oral cavity. I couldn't tell you if there
16 were fibers in the oral cavity. That is not
17 an area that of -- that I understand and
18 that is not an area that we accumulate
19 particles very well. Those cells of the
20 oropharyngeal region are not really very
21 phagocytic.

22 Q. Thank you. And I don't want to
23 jump ahead too far. Is it your opinion then
24 that a possible reason for your belief that
25 cigarette smoking and asbestos act

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1 synergistically to produce lung cancer, if
2 that's indeed your belief, and I think
3 that's what you stated, is that cigarette
4 smoking causes squamous metaplasia, squamous

5 cells, denuded squamous cells, or squamous
6 cells there where they shouldn't be are more
7 susceptible to penetration by asbestos
8 fibers that are inhaled?

9 A. That's part of the story, yes.

10 Q. Okay. And we'll get back to
11 that in a moment.

12 Let's go to Number 7: Cigarette
13 smoke causes persistent and acute chronic
14 inflammation of the bronchioles. I think
15 we've discussed that. You also go on to
16 say:

17 "Unfortunately, this is one
18 of the same anatomic sites affected
19 by inhaled asbestos fibers. Thus, in
20 an individual who smokes, inhalation
21 of asbestos fibers is expected to
22 exacerbate the inflammation and
23 consequent fibrogenesis at the ends
24 of the small airways."

25 If I understand you correctly,

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1 what you're saying is that as -- asbestos
2 inhalation can exacerbate a very rare
3 condition or a rare condition in which
4 smokers get inflammation and subsequent
5 fibrosis; is that right?

6 A. Yeah. Well, first of all, I
7 really don't know how -- how rare a smoker's

8 bronchiolitis really is. I mean if you
9 could go in and look at all of the airways
10 of smokers, small airways of smokers, it may
11 be common. I really don't know. I think
12 it's probably not as rare as you might like
13 to think it is, but I don't really have the
14 data to show. So, it's my opinion that
15 since you see in smokers a respiratory
16 bronchiolitis, and this is one of the sites
17 where asbestos is inducing its changes, that
18 you can multiply those effects. If it's
19 rare, yes, it's multiplying that rare
20 effect. I don't know just how rare it is.

21 Q. Doctor, would you -- would you
22 accept a medical doctor's view on the rarity
23 of that condition?

24 A. If somebody has good data on how
25 often you see respiratory bronchiolitis,

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1 sure, I'd like to see it.

2 Q. All right. Thank you.

3 I take it that you do not have
4 an opinion, nor will you be offering one, on
5 confusing radiologically smokers'
6 bronchiolitis and changes from asbestosis?

7 A. I wouldn't do that.

8 Q. Thank you.

9 Let's take a look at Number 8.

10 I think we've discussed that pretty well,
11 and I think that that is your view on the
12 mechanism for the development of emphysema;
13 is that correct?

14 A. Right.

15 Q. Okay. And I take it that the
16 reason that that's in there is because you
17 were asked to talk about lung diseases
18 associated with smoking?

19 A. That's right.

20 Q. Let me look with you then at the
21 last sentence on Page 3:

22 "The combination of chronic
23 bronchitis, emphysema and asbestosis
24 can result in a severely disabled
25 individual with the ability to

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1 transpire and to exchange respiratory
2 gases more severely compromised than
3 any one of the disease processes is
4 likely to produce alone."

5 Why did you put that line in
6 your report?

7 A. I -- I really can't -- I'm
8 trying to remember if I was asked to do
9 that, and I don't remember being asked to do
10 that, so, I guess I put it in there because
11 that's my opinion. We're talking about
12 diseases as they appear together from

13 different etiologic agents, like asbestos
14 and cigarette smoke, and that makes sense to
15 me. Whether or not that can be
16 substantiated by physicians who are doing
17 this work, I'm not sure.

18 Q. Were you asked to comment on how
19 disabled or whether claimants in this action
20 were disabled?

21 A. Not specifically, no.

22 Q. Were you asked generally to talk
23 about whether they were disabled?

24 A. What would classify an
25 individual as disabled? No.

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1 Q. Well, you -- you have "disabled"
2 in your report, so, I wanted to know why in
3 this entire report, suddenly, we're talking
4 about disability.

5 A. Well, I don't know if I was
6 talking about disability, if you would. I
7 mean, "disabled" is a pretty general term
8 for -- I'm certain -- I certainly didn't use
9 it as one would to define what you would
10 mean as disabled.

11 Q. You don't even know what I mean
12 of "disabled," right?

13 A. Yeah, I don't, and, I -- you
14 know, ask me about it if you want to, but I

15 really have nothing more to say about it.
16 In other words, I was not asked to do that
17 specifically, and I have no real basis for
18 proving to you that that's the case, so --

19 Q. In your line of work, do you
20 commonly diagnose people as disabled?

21 A. No. No. And, see, that's, I
22 think, the point. "Disabled" has a certain
23 connotation. Whether it's legal or related
24 to the definitions for the courtroom, that's
25 certainly not what I had in mind.

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1 Q. What do you have in mind here?

2 A. "Disabled" means that you are
3 not functioning normally.

4 Q. Is that something you do in your
5 everyday work, is describe people as not
6 being able to function in their everyday
7 work?

8 A. Well, if you read my papers and
9 my grants, it starts out with people who
10 have interstitial lung disease are disabled
11 from their inability to respire and
12 transpire gases. So, sure. I mean, that's
13 what all of this research is about, is to
14 understand what disables people. Now,
15 there's another level of disability, I
16 think, that you're talking about here, and
17 that's not really what I'm talking about.

18 Q. So, if I understand you
19 correctly, what you're talking about here is
20 an inefficiency in respiration, and you're
21 not talking about how well they function in
22 society or in their work or whether or not
23 they should be compensated by the Johns-
24 Manville Trust for any disability?
25 A. You are correct.

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1 Q. So, you won't be talking about
2 disabled individuals and whether or not they
3 should have been compensated for that --
4 A. You are correct.
5 Q. -- disability?
6 A. You are correct.
7 Q. Do you know what proportion of
8 Johns-Manville claimants were medically
9 disabled --
10 A. No.
11 Q. -- or couldn't work?
12 A. No idea.
13 Q. Is that information irrelevant
14 to you?
15 A. It is.
16 Q. Okay. Is it irrelevant to you
17 how much compensation they received for any
18 particular disease?
19 A. It is irrelevant.

20 Q. It is irrelevant to you.
21 Doctor, you realize that this
22 was a claims process wherein individuals at
23 some point sought compensation from the
24 Johns-Manville Trust? Are you aware of
25 that?

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1 A. I suppose if you ask me do I
2 know -- did I know that, I suppose I could
3 deduce that, but I don't know the process
4 you're talking about.

5 Q. Well, speaking of process,
6 Doctor, are you aware of the process by
7 which compensation was made to claimants?

8 A. No.

9 Q. Are you aware of any of the
10 diagnostic criteria that were used?

11 A. No.

12 Q. Is any of that relevant to you?

13 A. No.

14 Q. Is it equally irrelevant to you
15 whether or not mistakes were made in the
16 diagnosis of these individuals?

17 A. In my testimony, yes, it is
18 irrelevant.

19 Q. Is it equally irrelevant whether
20 persons were compensated for diseases not
21 caused by asbestos exposure?

22 A. Well, I might not like to see

23 that or know that that's true, but it's not
24 going to affect my testimony in any way.
25 Q. Thank you.

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1 Let's go to Paragraph 9, if we
2 would, and I'm having a little trouble
3 reading my copy, but let's see if we can
4 struggle through it together. Reading from
5 Paragraph 9:

6 "Asbestos is a complete
7 carcinogen, meaning that it alone is
8 capable of inducing the genetic
9 errors that can lead to cancer."

10 Doctor, is asbestos, in your
11 view, a risk factor for the development of
12 lung cancer?

13 A. Yes.

14 Q. Would you also agree that
15 because it is a complete carcinogen that it
16 is an independent risk factor for
17 development of lung cancer?

18 A. Can be, yes.

19 Q. Next line: "Cigarette smoke
20 contains many such carcinogens."

21 By that, do you mean that
22 cigarette smoke contains many complete
23 carcinogens?

24 A. Yes.

1 carcinogens, Doctor?

2 A. I can't give you the list. I'd
3 need to look at one of the references, but,
4 I mean, the polyaromatic hydrocarbons,
5 benzo(a)pyrene and things like that are
6 complete carcinogens.

7 Q. In humans?

8 A. In humans, sure.

9 Q. Do you know if there is a list
10 of compounds known as human carcinogens?

11 A. I believe so, yes.

12 Q. Do you know which compounds in
13 cigarette smoke are also on that list?

14 A. I can't give you all of them. I
15 mean, I know the National Toxicology Program
16 has such a list and I know they just named
17 side-stream smoke as a known human
18 carcinogen. So, I mean, what it is that's
19 in that smoke that they're including, I'm
20 not sure. I'd have to go to the list to be
21 able to tell you.

22 Q. So, what is your basis, then, I
23 guess, for saying cigarette smoke contains
24 many such carcinogens?

25 A. Well --

1 Q. You don't know off the top of
2 your head?

3 A. I don't know the list. I mean,
4 I named polycyclic hydrocarbons, polycyclic
5 aromatic hydrocarbons, of which there are
6 several in cigarette smoke. Benzo(a)pyrene,
7 I guess, considered to be the main -- the
8 main culprit, but there's a -- but tobacco
9 smoke carcinogens in lung cancer from the
10 "Journal of the National Cancer Institute"
11 would be a source that I would go to give
12 you the list, but off the top of my head, I
13 can't do that.

14 Q. Certainly, you don't consider
15 yourself to be an expert in cigarette smoke
16 carcinogens, do you?

17 A. I'm not an expert in giving you
18 the list. I can -- I'm an expert in
19 understanding how carcinogens induce genetic
20 errors and how errors in the genes that
21 control cell growth lead to cancer.

22 Q. Okay. Fair enough, Doctor.
23 What is it about benzo(a)pyrene that makes
24 it a complete carcinogen?

25 A. Well, it -- it looks like it's

1 able to cause specific point mutations in
2 certain genes, like p53, for example. You
3 get G to C conversions, meaning guanosine is
4 replaced by cytosine, or adenine is replaced
5 by thiamine. And what that does is when the
6 DNA then reads off and makes an RNA to
7 produce a protein or amino acid, you get
8 errors in the way the protein is produced
9 and you get an abnormally functioning
10 protein. And when -- when p53 -- as the
11 best example, when p53 does not function
12 correctly, it doesn't act as an appropriate
13 tumor suppressor. It also acts as a
14 transcription factor for another of -- a
15 number of other growth-controlling genes,
16 and when you have these shifts in base -- in
17 specific bases, you get abnormal proteins
18 that doesn't function correctly, and
19 benzo(a)pyrene induces at specific at sites
20 those changes, as described in several
21 publications.

22 Q. Is it actually the
23 benzo(a)pyrene that causes the problem?

24 A. Well, apparently, I mean, that's
25 what was used in the studies as the only

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1 carcinogen to induce the changes.

2 Q. Okay. Thank you.

3 What is it exactly about --

4 well, first of all, does benzo(a)pyrene form
5 adducts?

6 A. Yes, it does.

7 Q. Does it matter where the
8 benzo(a)pyrene comes from in determining how
9 readily it forms adducts?

10 A. I can't tell you. I don't know
11 that, whether the source matters. I don't
12 know.

13 Q. What are some of the sources of
14 benzo(a)pyrene that we're exposed to?

15 A. Well, we can be exposed to
16 cigarette smoke; combustible hydrocarbons
17 can produce benzo(a)pyrene.

18 Q. Would you say that
19 benzo(a)pyrene is ubiquitous in the
20 environment in which city dwellers live?

21 A. It is, yes.

22 Q. What is the relative dose that
23 you're going to get of benzo(a)pyrene? Is
24 it large from cigarettes, or small?

25 A. Compared to the environment, I

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1 would suppose it's large, but I don't know
2 just how much the dose is.

3 Q. So, you don't know what the dose
4 is?

5 A. I don't.

6 Q. Is benzo(a)pyrene, in your view,
7 the substance in cigarette smoke that causes
8 lung cancer?

9 A. Well, my opinion is that it's a
10 very good candidate. It's certainly an
11 established carcinogen. It causes the kinds
12 of errors in genes that can lead to cancers
13 and, so, it's certainly a -- a reasonable
14 culprit as one of the number that are found
15 in cigarette smoke.

16 Q. Doctor, do you rely on a paper
17 by Dr. Denissenko?

18 A. That doesn't sound familiar.

19 Q. I'd like you to take a look --

20 A. Oh, okay. Right. Yes. This is
21 from Dr. Pfeifer's lab. That's why I didn't
22 understand it. Dr. Pfeifer -- Gerd Pfeifer
23 is well known in this -- in this field.

24 Q. Doctor, have you read that
25 paper?

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1 A. Yes.

2 Q. Are you familiar with its
3 content?

4 A. Well, we'd have to talk about
5 specifics, but it describes -- yes, go
6 ahead.

7 Q. Let me take a look at it. What
8 is the Denissenko paper's thesis?

9 A. That there are these hot spots,
10 these specific conversion at sites in the
11 p53 gene that benzo(a)pyrene causes,
12 these -- some of these changes I was talking
13 about earlier, where you have base
14 conversions, and this paper demonstrates the
15 actual sites of those conversions.

16 Q. No pun intended here, Doctor.
17 Does this paper -- is it the smoking gun?
18 Is this the mechanism for the production of
19 lung cancer from cigarette smoking?

20 A. Well, it could be. I don't
21 think its -- that that's been proven yet,
22 but it certainly could be. It is a very
23 credible postulate as to how that could
24 happen.

25 Q. Okay. Now, this will go back to

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1 my question I asked you earlier about
2 testifying to a reasonable degree of medical
3 or scientific certainty, and I notice that
4 when you describe your views here, you
5 talk -- and, specifically, concerning
6 synergy, you refer to "this could occur" and
7 you use "could" and "may" and "would."
8 Would you agree that this has not yet
9 reached a level in medical science of you
10 being able to rely on it to testify to a

11 reasonable degree of medical certainty that
12 this is the mechanism by which cigarette
13 smoking either alone or in combination with
14 asbestos exposure causes lung cancer?

15 A. I couldn't do that. If the
16 question were is this a mechanism through
17 which benzo(a)pyrene causes alterations in
18 the p53 gene, certainly, but is that the
19 mechanism through which cigarette smoke
20 causes the cancers that it does, I can't
21 tell you that.

22 Q. Exactly. Would you agree that
23 the pathway, the p53 mutogenesis pathway, is
24 a long and complicated one?

25 A. Sure.

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1 Q. And that it's not as simple as
2 saying there are mutations in the p53 gene
3 and, thus, you get lung cancer?

4 A. No. You can't do that, but you
5 can -- like any other science, you look at
6 people who smoke and you look at people who
7 are exposed to asbestos and you find
8 alterations in p53 and their cancers and you
9 find a carcinogen in cigarette smoke that
10 induces those same kinds of changes, and
11 this is a building process, just like any
12 other process in science.

13 Q. A piece of the puzzle?

14 A. Sure.

15 Q. But not the puzzle, not a solved

16 puzzle?

17 A. It is not.

18 Q. And, in fact, Doctor, don't you

19 find p53 mutations in the lungs of persons

20 who have never smoked?

21 A. Sure.

22 Q. And isn't it true that in lung

23 cancers found in smokers, you don't

24 necessarily find p53 --

25 A. Right. It's about --

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1 Q. -- mutations?

2 A. -- it's more than half of

3 cancers, but there are some in which you

4 don't find it, true.

5 Q. So, this isn't the answer. This

6 is another piece in a puzzle?

7 A. To help us understand the

8 process, that's correct.

9 Q. All right. And I take it you're

10 not going to testify that you understand the

11 process and are going to testify what that

12 process is?

13 A. Well, I'm going to testify as to

14 how carcinogens cause cancer, and -- and --

15 and to the point that there is a carcinogen

16 like benzo(a)pyrene that is a component of
17 cigarette smoke causes cancer, I can testify
18 to that.

19 Q. Forgive me if I'm slow here.
20 What I thought you just told me was that you
21 can talk about certain carcinogens and an
22 end result, but that you don't know the
23 pathway in between.

24 A. Right. There are many steps in
25 the pathway that we don't know, sure.

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1 Q. All right. Is it possible then
2 that what you think, just because you can
3 see the start and the finish of what is
4 probably a very long and complex pathway,
5 that it is also possible that it may not be
6 the right pathway at all?

7 A. Of course. That's what science
8 is all about.

9 Q. Which is why I asked you whether
10 or not that is something you can testify to
11 to a reasonable degree of medical scientific
12 certainty?

13 A. Well, I will testify to degree
14 of medical and scientific certainty what we
15 do know. We do know that benzo(a)pyrene
16 causes these changes that are described in
17 these papers in the p53 gene, which is
18 essential in the production of many

19 cancers -- if not all of them, many cancers.

20 Q. And it may not have anything to
21 do with a particular lung cancer in an
22 individual?

23 A. That's true.

24 Q. All right. And, likewise, as to
25 K-ras as well?

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1 A. Sure.

2 Q. So, I take it that you will not
3 be testifying, for instance, that in the
4 case of members of the trust who were
5 exposed both to cigarette smoke and to
6 asbestos fibers that it is the action of
7 benzo(a)pyrene that caused specific genetic
8 deletions or mutations which led to the
9 cancer in that group of people?

10 A. I can't do that.

11 Q. Fair enough, Doctor.

12 Doctor, I have looked through
13 your expert report with some diligence, and
14 I wonder, did you write something about
15 cigarette smoking and the production of
16 benign pleural disease in this report?

17 A. I don't know. Did I? I haven't
18 looked at it for a while. Doesn't ring a
19 bell.

20 Q. Well, perhaps I can shortcut

21 this. Doctor, do you intend to testify that
22 cigarette smoking either causes or
23 contributes to the development of benign
24 pleural disease? And by that, I mean
25 pleural plaques, pleural thickening, pleural

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1 fibrosis of any type, pleural effusions, any
2 of those things?

3 A. I have no information in that
4 regard. So, the answer is no.

5 Q. So, no, you're not going to be
6 testifying that cigarette smoking causes or
7 contributes to either -- to any of those
8 disease processes?

9 A. I haven't heard that it does,
10 so, I guess I wouldn't say that --

11 Q. That's fine. That's fine. And,
12 equally, I wanted to know, you don't intend
13 to talk about cigarette smoking as causing
14 or contributing to the development of
15 mesothelioma?

16 A. Correct.

17 MR. DUNCAN:

18 Doctor, why don't we take a
19 short break here and we'll see if
20 we're done.

21 THE WITNESS:

22 Sure.

23 THE VIDEOGRAPHER:

24 Going off the record. It's
25 4:20.

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1 (Whereupon, a discussion was
2 held off the record.)
3 THE VIDEOGRAPHER:
4 Returning to the record. It's
5 4:42.
6 MR. DUNCAN:
7 Dr. Brody, I think this
8 concludes the deposition. I've got a
9 caveat to that, and perhaps I'll
10 address this to Counsel.
11 We have these six articles
12 that we received this morning, and I
13 guess the way I'll address it is
14 first to you, Dr. Brody. Can I rely
15 on the following: That there is
16 nothing in any of these articles that
17 is going to change or amplify or
18 supplement what you said today; that
19 everything that you've testified to
20 takes these articles into
21 consideration; that you're not going
22 to show up at trial and say, well,
23 Counsel, I know what my deposition
24 testimony is, but after having reread
25 these six articles, I've got some

1 more to add that you didn't ask me
2 about? In other words, even without
3 these, are we done? Because the
4 solution to if you're not is we need
5 time to read these, hold the
6 deposition open and continue going.
7 So, if -- and I'm happy to do it
8 either way.

9 MR. WESTBROOK:

10 Yeah, I think I'll address
11 it. If there is something in there
12 that would change or amplify Dr.
13 Brody's opinions, we'll let you
14 know. I don't anticipate it because
15 the way the articles came up is that
16 they were support for what was in the
17 opinion itself.

18 MR. DUNCAN:

19 Okay.

20 MR. WESTBROOK:

21 But I think you and I
22 understand each other, that you would
23 be entitled -- if he changes
24 something, you would be entitled to
25 ask him about it. You got the

1 articles today, so, you haven't had
2 time to read them.

3 MR. DUNCAN:

4 All right. As long as we have
5 that understanding.

6 MR. WESTBROOK:

7 You and I have that
8 understanding.

9 MR. DUNCAN:

10 All right. Then, we're done.
11 Thank you.

12 THE VIDEOGRAPHER:

13 We're now off the record at
14 4:44.

15 (Whereupon, the testimony of
16 the witness was concluded.)

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2 WITNESS' CERTIFICATE

3

4

5 I, ARNOLD R. BRODY, Ph.D., read or have
6 had the foregoing testimony read to me and
7 hereby certify that it is a true and correct
8 transcription of my testimony, with the
9 exception of any attached corrections or
10 changes.

11

12

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14

15

16 (Witness' Signature)

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1 REPORTER'S CERTIFICATE

2

3 I, CAROL E. VALLETTE, Certified
4 Court Reporter, Registered Professional

5 Reporter, in and for the State of Louisiana,
6 as the officer before whom this testimony
7 was taken, do hereby certify that
8 ARNOLD R. BRODY, Ph.D., after having been
9 duly sworn by me upon authority of R.S.
10 37:2554, did testify as hereinbefore set
11 forth in the foregoing pages; that this
12 testimony was reported by me in the
13 stenotype reporting method, was prepared and
14 transcribed by me or under my personal
15 direction and supervision, and is a true and
16 correct transcript to the best of my ability
17 and understanding; that I am not related to
18 counsel or the parties herein, nor am I
19 otherwise interested in the outcome of this
20 matter.

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25 REGISTERED PROFESSIONAL REPORTER

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